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STORAGE

VOL. II. TORONTO, SEPTEMBER, 1921 No. 3

R. A. McIntosh

THE
CANADIAN VETERINARY RECORD

PROGRESS

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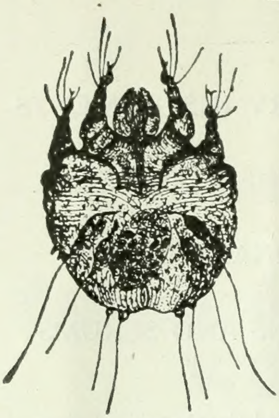

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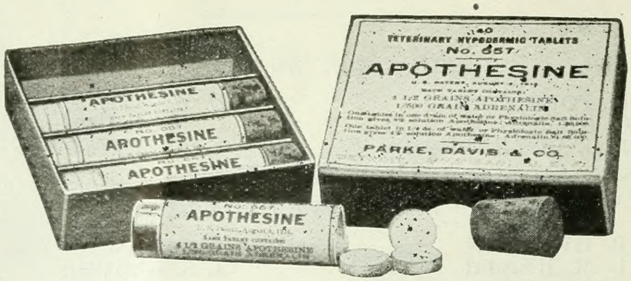

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THE
Canadian Veterinary Record

PUBLISHED QUARTERLY FOR THE PROFESSION IN THE INTEREST OF VETERINARY SCIENCE

Vol. II. TORONTO, SEPTEMBER, 1921. No. 3.

Editorial

THE CANADIAN VETERINARY RECORD.

A veterinary journal in Canada has long been desired by the profession, and the production of the Canadian Veterinary Record represents an honest attempt to provide a suitable publication that will appeal to all.

The record is published in a very modest way. It is not being produced as a business venture, because no salary or remuneration is being received by the Editorial Staff, as their services are given free. Likewise no expenses are being incurred for rent, as office space is being provided free of charge. The entire proceeds obtained from subscriptions and sale of advertising space is devoted to meet the cost of printing, stationery and postage.

The Record is being published quarterly and entails an expenditure of about $2,000.00.

Copies of the March and June editions were sent to every registered Veterinarian in Canada, as far as we have been able to determine from the mailing lists at our disposal.

We have reason to believe that the majority of the Canadian Veterinary Profession endorse the aims and object of this paper, but whether it be through apathy or forgetfulness only a small number of our friends have acknowledged its receipt by sending the $2.00 representing the 1921 subscription.

While the Executive wish the Record to become the success and achieve the objects that its well wishers desire, it cannot be produced without funds. We therefore gently remind our friends that if we suspend publication at the end of the present year it will be through lack of sufficient support by the Canadian Veterinary Profession.

A CANADIAN NATIONAL VETERINARY ASSOCIATION AND DOMINION REGISTRATION COUNCIL.

In the opening pages of the Canadian Veterinary Record, which made its appearance in April 1920, there appeared an article by Dr. C. D. McGilvray entitled "Dominion Registration for Veterinarians." Then again in the March issue of this journal for the present year, the subject is dwelt on at some length by Dr. W. Thomson of Keremeos, B.C., who not only emphasizes Dr. McGilvray's suggestions, but advocates the establishment of a Canadian National Veterinary Association as well as Dominion Registration.

Needless to add both articles have stimulated a wealth of thought among the profession, which will in time bear fruit. In a recent editorial appearing in the June number of the Journal of the A. V. M. A., certain favourable comments are made concerning the status of the Canadian Veterinary Profession. This article reads:—"It is very gratifying to the profession that it has even at this late date been so generally recognized. The great changes which have taken place in recent years, in the field of study in veterinary science, which now aims more than ever at the control of animal diseases and their prevention, places the profession in a more exalted position."

At the same time the Record ventures to express the opinion that there can be little progress made unless we stand and pull together. If we are to keep pace with allied sciences, we shall require Dominion Representation backed by a National Association, combining the entire Canadian veterinary profession through the medium of our Provincial Associations, with every veterinarian a member.

Such an organization would invite Federal Legislation and have sufficient importance to secure proper consideration in all matters pertaining to the profession. We should also strive to bring about what is so essential at this period of our existence, the formation of a Dominion Registration Council similar to that enjoyed by the Medical Profession established under the Canadian Medical Act.

In years gone by the profession has distinguished itself by its entire lack of organization. Our Provincial Associations, are in many instances, handicapped by having to contend with a spirit of indifference. Some of our Canadian Associations rely for their initiative upon the energy and love of their calling of a few members. Such men are found in every Association and represent the soul of the profession today. Meetings are called and programmes sent to every member but they are for the most part poorly attended. The bulk of the Association's work falls upon the Secretary and President and a few of the executive. During the year, between meetings, it sometimes happens that a great deal of the Association's funds have to be spent in providing "attractions" so that the members may be enticed to attend the annual meeting, when the appointed time draws nigh. Such a condition of affairs does exist and we know it . The time has arrived when it is to our mutual advanvantage to show a little incentive and desire for progress and shake off this growing lethargy. The moment is at present rich in possibilities if we would consider them.

The profession today is in a very enviable position compared to what it was 15 or even 10 years ago. Cooperative legislation until recently was impossible owing to the largest Province in Canada refusing to pass any form of legislation that would protect qualified veterinarians. Thanks again to the few enterprising, energetic and persistent men of our profession, Ontario passed the Ontario Veterinary Practice Act last year.

The time has arrived when we can broaden out and let in the light. We should not be slow to take advantage of our position. There is a very present need for comparative ideas. During the past twenty years we have been content to live, gyrating as it were, in the shallow excitement of a tedious existence.

With a National Association, providing every veterinary surgeon would join, we should receive adequate recognition which at the present time we do not enjoy. Public appointments, whether Federal, Provincial or Municipal could be encouraged by the Association and salaries adjusted to a scale more in keeping to positions occupied by highly trained veterinarians.

Veterinary health work in connection with the control and inspection of foods, inspection and control of live stock, sanitation etc., so vital to the welfare of the nation, are becoming more and more entrusted to the veterinary specialist and should be consistently subsidized.

The question is often asked "Who are more competent to guard the essentials of life than the veterinary hygienist? Why are not positions created by Municipal and Provincial governments for Veterinary Health Officers in addition to Medical Health Officers?"

It is well known that under the present system large veterinary staffs are maintained in cities, employed under the diection of the M. O. H., who in most cases, not only governs salaries but recommends appointments. How is it that medical men in charge of city laboratories that undertake bacteriological examination of food stuffs and milk supplies, command practically double the salary paid the senior veterinarian on the same city staff? Why should our medical friends take credit for work done by the veterinarian in these positions? This is a matter for a National Veterinary Association to discuss.

The interests of the general public are still being faithfully served by the veterinary profession notwithstanding the small measure of encouragement received. Such service is worthy of recognition, but we must not forget that "The Lord helps those who help themselves,"

A National Association could watch the welfare of our schools and teaching institutions, to insure them being properly supported, and the right kind of student induced to take up veterinary work.

We sincerely trust that this article meets the watchful eye of the Honourable Dr. S. F. Tolmie, Minister of Agriculture at Ottawa, and that by virtue of his particular and peculiar sympathies with the veterinary profession, together with his wide range of influence, he will extend a helping hand with a view of calling a meeting of representative men to discuss ways and means leading to the formation of a Dominion Veterinary Council. In this endeavor, it is suggested that each Provincial Association should elect one representative to meet and confer with the Honourable Dr. Tolmie this Fall.

CANADA'S HORSE POPULATION.

Canada's horse population is increasing, but many of the animals being bred are of a type for which there is not and never will be a remunerative demand, according to statistics covering the horse breeding industry issued by the Department of Agriculture. When war broke out in 1914 there were three million horses in Canada. Five years later it was estimated that there were something like 3,667,000 horses in the Dominoin. The entire increase appeared to be in Alberta and Saskatchewan. The fact is deplored by officials of the department that much of the original stock, as well as the increase, is of a kind for which there is no demand. During the five years covered in the figures mentioned, there were 3,120 pure bred stallions and 1,969 pure bred mares imported into Canada. Of these 320 stallions and 1,719 mares came from Great Britain and the balance from the United States. All of these, however, were not of a desirable type, as shown by the examination of 25 stallions by the live stock branch. Thirteen of the stallions were found to be unsound, and all but one of the unsound horses had been imported.

Tuberculosis Free Herds.

By George Hilton, Chief Veterinary Inspector. Ottawa.

The object of the tuberculosis free accredited herd plan is the control and ultimate eradication of one of the most common, as well as one of the most costly diseases of persons and cattle.

It is disease causing enormous losses ot the live stock interests, and one which is also a very serious menace to the public welfare.

The problem of controlling this disease has engaged the attention of the authorities throughout the civilized world for a very long period, and there are very few countries which have not at sometime or other attempted suppressive measures.

The accredited herd plan was first put into operation in the United States in 1917, and was due to the fact that the American breeders began to realise this disease was causing very large financial losses. They found that owing to the individual state work controlling this malady, they could not ship their animals interstate without a great deal of trouble resulting, owing to the state laws, which necessitated the holding up of animals for the sixty day retest. Reactors to this test were either promptly slaughtered, or shipped back to the original owner.

As this action was costly to them, they immediately, through their associations, began forwarding resolutions to Washington demanding that uniform action should be taken to deal with this malady. Their demands were so frequent that the American authorities realised the breeders were in earnest and, as the American government was only too anxious to deal with this disease, they promptly called a conference of the breeders, representatives from the state government boards, Bureau officers, as well as the Veterinary Director General of this country.

The matter was discussed from all angles, and after the holding of several conferences, the accredited herd plan was agreed upon.

This is a new plan, and, just to show what progress has been made with it in the United States, I might say that, although it is not four years since this plan became operative there are now in the United States 7,500 fully accredited herds, with 182,700 fully accredited cattle; they have also on their waiting list 13,600 herds, with 208,000 cattle, which they have so far been unable to test, this work being very popular with the breeders who are familiar with it.

The accredited herd plan became operative in Canada in September 1919. It is on exactly similiar lines to that of the United States. The regulations governing this plan define an accredited herd as one which has passed two annual or three semi-annual tests. An owner who desires to have his herd accredited is supplied with two application forms, which he fills in, retaining one for future reference, and returns the other to the head office at Ottawa.

These application forms are really agreement forms, and the owner agrees with the Department that he will comply with the following conditions:

1st, that he will permit the Department to test his whole herd at any time it is considered necessary, or advisable;

2nd, that he will not present any animals to the test which have been injected with tuberculin within sixty days, or any which have at any time reacted to his knowledge to tuberculin;

3rd, that he will remove any reactors immediately from his herd, and dispose of them by slaughter, or any other approved method;

4th, that he will pasteurise all milk and cream, or other dairy products fed to his calves, unless it is obtained from his own tested cattle, or from a fully accredited herd;

5th, that he will not permit his cattle to come in contact with any untested cattle, and that he will report any purchases, sales, or fatalities in his herd to the Department.

6th, that he will maintain his premises in a clean sanitary state, and will disinfect them at any time he is requested to do so;

7th, that he will furnish transportation to the veterinary inspector from the nearest railway station to his premises whenever this is necessary.

The procedure followed in dealing with a herd under accreditation is as follows:—

The inspector proceeds to the premises, and first makes an inspection of the stables, and satisfies himself that they meet the departmental requirements. If not, he advises the owner as to what alterations are necessary with regard to light, ventilation, cubic air space, and drainage. If the owner is able to make the improvements promptly, he commences the test of his animals.

If the owner has not a satisfactory means of identification of the individuals in his herd, the inspector inserts a departmental ear tag with serial number into the tip of the ear; while doing so, he is obtaining from the owner other particulars with regard to the individuals as to their registration number, names, etc.

The inspector chooses what particular test he will conduct in accordance with the history of the herd. If the herd has been systematically tested by the subcutaneous method, he will choose one of the combined tests. Upon the completion of the test, we will suppose the owner has ten reactors, these reactors are earmarked, and promptly removed from the premises, and the owner is permited to decide where he will have these reactors slaughtered. If they are to be killed at a local slaughter house, the field officer proceeds there, and supervises the slaughter, and also conducts the postmortems.

If, however, the owner desires to ship the animals to a packing house under Federal inspection, he must decide what particular plant the animals are to be shipped to. The inspector then issues a license for the removal of these particular cattle, giving their identification numbers, as well as the particular plant they are to be shipped to. He forwards a copy of this license to the meat inspector in charge of that particular plant. Directly the owner obtains his car, and the shipment goes forward, he wires the meat inspector at the plant giving the number of cattle and the car number, as well as the date of shipment.

This gives the meat inspector an opportunity to make arrangements for the isolation of these animals in the yards. These cattle are generally killed together at the beginning of the day's kill, or at the completion of it.

The meat inspectors make a careful post mortem and the one in charge of the abattoir signs the license, which has been forwarded to him by the field officer, and certifies that the animals mentioned on the license have actually been slaughtered under his supervision. To this license he attaches a post mortem report, and the field officer then completes his fyle and forwards it to Ottawa.

In the meantime, after the field officer has sent the telegram advising of the shipment of the cattle, he supervises the disinfection of the whole premises.

As there were reactors, this test does not count as an accredited test.

The herd, however, is held for a sixty day retest in order that, if any reactors are left, there is less time for the disease to be disseminated than if the test was not conducted for a six months' period.

It is the custom of the Department to retest the herd in sixty days every time reactors are found.

As soon as the herd passes the test without any reactors being found, that particular test is the first test for accreditation. No further action is taken with that herd until another period of six months has expired, when it is retested. If this herd passes this second six months' test, it is held for another period of six months, and then tested again. If no reactors are found at this test, the herd having passed three semi-annual tests without any reactions, is entitled to accreditation, and the owner is supplied with an accredited herd certificate. This permits him to ship any animals from his herd at any time either for export or elswhere without additional test. These animals are accompanied by a certificate giving their identification numbers and stating they are from an accredited herd.

If, however, our inspector found one or more reactors in this herd at the second or third six months test, the whole herd would revert back to the position it was in at the commencement of the first test. That is to say, it would have to be retested in sixty days and the same procedure followed with reactors. A herd may become accredited in two annual tests, but this is only possible in cases where no reactors are found at the first test.

Breeders who lose a number of their animals are anxious to purchase more animals to add to their herd.

This matter was thoroughly discussed at the various conferences held in connection with accredited herds, and it was decided that if an owner of a fully accredited herd, or one undergoing accreditation, had to follow the same precedure as that in the accreditation of a herd, with animals purchased, the whole plan would be impracticable.

It was therefore decided that additions to herds could be permited under the following conditions:—

1st, the owner of the accredited herd, or one undergoing accreditation must notify the Department he has purchased cattle, and give the name of the owner of the premises where these cattle have been purchased.

2nd, an inspector is then sent to test these cattle on the original premises, if they pass the test, they are then permitted to be moved to the premises on which the herd undergoing accreditation is located.

3rd, they are there isolated by themselves and in sixty days retested. If they pass the retest, they are then permitted to be put into the herd, whether it is a fully accredited herd, or one which is undergoing accreditation.

If, however, any of these animals react at the first test on the premises where purchased, they are permanently earmarked by punching the letter "T" through the right ear, and they cannot be removed to the premises on which the herd is under accreditation.

The accredited herd plan has been in operation in Canada two years in September next. We have conducted 26,000 tests in 508 herds, and have found 3,026 reactors. Compensation has been paid amounting to $363,000. Our records show that it costs five times as much for the first or initial test as all the retests combined. There are at the present time 17 fully accredited herds in Canada, 8 Holsteins, 6 Jerseys,2 Ayrshires, 1 Aberdeen Angus, and 1 Shorthorn. Seven of these herds are located in British Columbia, two in Saskatchewan, two in Manitoba, two in Ontario and four in Quebec.

You will note that the province of British Columbia is leading, and this is no doubt largely due to the fact that the provincial authorities in that province have been enforcing measures for the control of tuberculosis in their dairy animals. They made sufficient progress in this work to justify the Federal authorities passing legislation prohibiting the importation of any pure bred cattle into that province unless they were accompanied by a tuberculin test chart signed by one of our officers, and made within thirty days of the date of the arrival of the cattle in that province.

Our experience in carrying out the accredited herd plan, although quite limited, shows that it is a practicable and workable plan, and that it is rapidly becoming popular with those who are familiar with it.

We have now 145 herds on our waiting list, and the applications for accreditation of these herds have been accepted. We have also in addition 121 applications which have not been accepted. The owners have been advised that we are unable to deal with their herds for an indefinite period but that their names have been added to a special list, and that they will be supplied with application forms directly the Department is in a position to take on these herds.

This plan is a very costly one, and during the last three months the Department has paid in compensation an average of $60,000 per month. This is exceeding our appropriation, and as we cannot continue to do so, it is necessary to limit our work.

The cost of this policy is under the very unfavourable financial situation a serious problem, especially so when we bear in mind that the Federal Government will have paid at the end of this fiscal period, which is March 31, 1922, $925,000,000 for war obligations alone.

It is not an easy matter to borrow large sums of money and this policy is not the only policy for the control of tuberculosis carried on by the Department, as there are other large expenditures in connection with our municipal tuberculosis order.

Our experience, however, has shown that in this country this plan is a popular one, and I might say that this is possibly because it is a worthy work, and has merit as its foundation. We shall, however, have to move slowly, but I am quite satisfied the Department is only too anxious to control and eradicate this disease just as quickly as financial conditions will permit.

The following humourous paragraph appeared under "Opportunity" in the July Bulletin of the Meat Division in the Health of Animals Branch, Department of Agriculture:—

Cast aside obsolete ways and strive to formulate newer and better ideas, always separating themselves from jealousy, fear, ill-temper and personal feelings, aiming at all times for the good will and respect of those with whom they have dealings; to assume responsibility when things go wrong and to grant to others the credit for what goes right. Persevere in your work, do honestly and well the work that awaits you, howsoever humble and distasteful it may be. There is no work, if necessary, but that will lead to something better if faithfully performed.

Proteid Food-Poisoning And Its Detection

By John Amyot, Deputy Minister of Health, Ottawa.

(Continued From Last Issue)

Collection of Samples.

Material from two sources reach the laboratories that are provided for analyses of such food products as are under discussion. First, those specimens which are suspected by outsiders not to be right, either the products don't look right or they are suspected of having been the cause of illness or death; and second, those specimens collected by the regular inspectors of the government deputed to have oversight of the manufacture of the goods in their various stages to the final marketing.

Over the first, as usually they are emergency cases and may be received from all kinds of sources, no rule for their collection or methods of sending can be made.

Over the second there should be very definite rules laid down and these should be as strictly adhered to as it is possible.

The conclusions to be drawn from the analyses and the action to be taken in the two cannot possibly be the same.

To take an instance as an example:—In the case of the first kind of specimens, In Brampton it was found that several people took ill, it was suspected, from a certain brand of canned goods. Somebody interested sent some of what remained to the analyst at Ottawa. This was probably wrapped up in any old bit of paper or enclosed in a gem jar (unsterilized, or if sterilized the stopper probably was not) and sent on by mail or express. No refrigeration was used to keep it in the same state as when it started. It ran all kinds of chance of becoming infected by those handling it on the journey or it may have been left about any old way before it was even packed. The results from any analysis of such perishable material could only be of clinical value and quite problematical, not certain enough to hang a dog on. To condemn the manufacturer on such evidence would be unjust. It is, however, not without value, but it should not be valued more than as a preliminary skirmish.

A properly qualified inspector should be sent to collect specimens of the original product either at the store or at the factory. He should be one qualified to verify the statements of the senders. He should himself take careful notes of all the circumstances surrounding the case and especially should get very clear notes of all the symptoms shown by those supposed to have been affected. Often it will be found that there is no connection with the material suspected. A competent man only can judge this. If he find it necessary to collect samples he should get these if possible in the original packages, or from the original piece, and if possible in unopened packages, or tins. A sufficient quantity should be taken so that at least a fourth of it can be left with the party that is defendant, or likely to be, a fourth of it may be left with the legal authorities, another fourth may be preserved in the laboratory in case it should be necessary to repeat the analysis or hand over to a referee, and one fourth of sufficient quantity for a full analysis without skimping is used in the laboratory. If this is not done the analysis may be questioned and arbitrariness be imputed. In the nature of things even with this precaution there may be criticism. Each of the packages might not be wrong. The critic would say divide the material of the can. The objection to this would be that once opened the goods being so perishable one quarter might go wrong and not the others. (It is so difficult to keep such materials free from infection). But the government must do this in order to protect itself because now very competent expert evidence can be procured, and facts are facts.

In the second source of speciments taken by the regular inspectors at the factories:—

The inspector should be supplied with proper sterilized containers in case he should find it necessary to collect unsealed goods, and he should be instructed in how to collect the specimens in order that they remain in their original condition. Packing-cases should be provided of a character that they cannot be tampered with and that can be used to keep the goods in refrigeration until they reach the laboratory.

The inspector also should be supplied with proper labels to mark the individual packages also with data sheets on which to supply all the information necessary as to circumstances surrounding the case, the analysis desired, the reasons for desiring such special analysis, and all the information obtainable that will help out the interpretation of the analysis, a full description of the goods and what he had found with reference to them, and any circumstances that might account for these conditions and finally a statutory declaration as to the truth of the statements and as to the identification of the collector.

If it is the finished product that is required to be analysed, this should be sent in the original containers in the same way as in the first class of specimens mentioned above.

If the inspector should find it necessary to hold up the "whole run" of goods, these should be so sealed and protected that no tampering is possible or extracting be done without his presence or that of someone deputed by him. The specimen should be delivered to the laboratory in person or a receipt should be got from the express company that will identify the specimen.

Preservation in the Laboratory.

Uninterrupted refrigeration should be provided for. It would be better to have it some degrees below the freezing point.

The goods should be preserved under lock and key to avoid any possibility of tampering and special care should be observed to see that information does not leak out.

Laboratory Tests.

These should consist of bacteriological tests, animal injection tests, chemical tests and confirmatory tests. This looks like a big proposition and will require much skilled help, but if the thing is to be undertaken and justice to all is to be done, and the Department avoid legitimate adverse criticism, provision must be made for this.

Bacteriological Tests.

Usually when goods are in the original unopened package and bacteria are present some one organism is in pure culture. In opened goods many may be found. The history and nature of the symptoms in the patient will direct the road to follow, and much unnecessary searching and fishing be avoided. The test should be made for anaerobic as well as for aerobic bacteria. The identification of the organisms should best be done after the standard recommended by the Society of American Bacteriologists as most of the workers in this country and the United States follow this standard.

Probably the best standard to follow in the making of the media to use, is that of the American Public Health Association. Any special media, however, may be justifiably used. Bacteria in sealed containers, tins, jars, etc., are of very considerable consequence. In open stuff they may signify nothing, also many varieties of organisms without developed poisons accompanying them signify little in this connection.

Animal Injection Tests

These animal injection tests are for the purpose of discovering if there be toxic substances (so-called ptomains) present. These may be found with living bacteria still present or they may be found without bacteria.

The bacteriological tests will have shown whether there are any living bacteria present or not.

If there are any present they must be eliminated before the injections are made, otherwise it will be very difficult to differentiate between the action of the poison or the action of the bacteria or both combined on the animals used.

Many of the poisons that might be present when we consider the various sources from which they might come behave differently to the methods of separating the bacteria from them.

Some of these poisons are altered or completely destroyed by heat. Some are not injured at say 60°C. but are destroyed at 100°C. Some are not affected by heat at all.

The poisons of Bacillus enteriditis and the paratyphoid bacillus are not destroyed at 100°C. The poisons of Bacillus coli and Bacillus subtilis do not withstand heat to the same extent as the above ones do, but are not injured by 60°C. The poisons of Bacillus proteus and Bacillus botulinus are destroyed completely by boiling but not very materially affected at 60°C.

If the causative organism is not known then it would probably be best to get rid of bacteria by methods dealing with each class.

Then proceed in the following way:—

Make a fine well triturated 10 per cent suspension of the material to be examined in distilled water. (There are salts enough in the food product) and let this stand for six hours in the cold to complete the leaching then rub up well again. Now strain through a clean sterile cheese-cloth. The chief poisons are soluble in water.

Filter one portion through a medium porcelain (after the Pasteur system) filter to remove all bacteria. Very few toxines are arrested by such filters. Pressure might be used to hasten the filtration.

Heat another portion without this filtration for one hour at a steady temperature of 60°C. This will remove the greater number of the bacteria and not materially alter the poisons. The spores left, if any, will probably not materially affect the after tests.

Boil a third portion for fifteen minutes.

Inject subcutaneously (after shaving and washing) 2cc, 4cc, 6cc, 8cc and 10cc respectively into as many guinea pigs, (250 grms. each) one set for each of the above suspensions, being careful that the solutions are at body temperature before injection to give the least shock possible to the animals. It would be well in the cases of the larger doses to subdivide in two or three injections at different localities so as not to tear up too much tissue at any one point.

The subcutaneous route is the better one and the one usually used to test toxines. Guinea-pigs stand by subcutaneous injections much larger quantities without harm than larger animals.

The absorbtion from the subcutaneous tissue is much steadier and is delayed, the animal in consequence is protected from shock.

Each animal should be tagged or diagrammed in order to be identified easily and certainly. The sex, weight and temperature of the animal should be recorded. Five animals should be enough for each set, but controls should be made in duplicate with material known to be normal.

The animals used should be such as have never been used before and should be bred from mothers that have not been used for any biological experiments.

The animals should then be kept in comfortable quarters and best bedded in hay; saw-dust and shavings are not considered good bedding material.

At least twice a day the conditions and temperature of the animals should be recorded, and the weight taken at least every day. In ptomain poisoning the animals often show distinct symptoms in 24 hours, but this may be delayed 48 hours or even 72 hours. If no symptoms develop at the completion of the fifth day, the result should be considered a negative. (Practically sterile injection material is being discussed here).

If the animal dies, a complete autopsy should be done and the results recorded, and it would be well to bacteriologically examine the seat of inoculation, any lesions, and the heart's blood provided the animal has not been more than two hours dead before the autopsy is done. After that the bacteriological examination of the blood is of little value.

The injection material contains approximately 1 gram of the original material in 10.cc. If the animal dies from the 10cc. injection, the toxicity should be considered serious and the food condemned.

Chemical Tests.

If the material under examination is not a product that has previously been treated by salt nor smoked, nor is gelatine, nor contains gelatine, it should be examined for free ammonia, by distillation.

Material made from fresh stock, such as chicken, should contain only traces of free ammonia. If it has been previously prepared by salting or smoking or in gelatine or contains added gelatine, it will in all probability contain a good deal of free ammonia. This test then could hardly be applied.

One gramme of the original material should be used for this free ammonia test and the quantity recorded. If it is above 5 parts per million, you have very good evidence that it has undergone some sort of germ action.

The real crucial test is the injection one. If the animal dies from its effect, the strong presumption is that the food is bad.

The bacteriological test comes next in order, but the presence of living bacteria in a canned product almost approaches the injection test in importance. The presence of bacteria without poison though of consequence depending on the organism present is not enough to condemn large quantities on.

The Ammonia Test is a Good Control.

None of these present insuperable difficulties, and, if enough help is supplied can be done as routine, and no legitimate objection can be raised against them as a ground for condemnation of a food or food-product, but other tests have been used and are still thought necessary by many. It is then good policy where advisable to use them. If for instance the crucial tests have been obtained and it is a question of the destruction of a considerable quantity of material, such tests as feeding and the search for ptomains chemically should be carried out to obtain all the evidence possible.

It is very generally admitted that many serious food poisoning cases will not show the presence of actual ptomains, the poisoning having been due to poisons that are completely destroyed by the chemical manipulations required to recover the actual ptomain, and besides many poisonings take place where no actual ptomains are formed, and the tests for ptomains do not show these higher poisons spoken of above in this report.

The Stass-Otto method for the recovery of ptomains is probably the most generally used and on which considerable reliance is placed.

As To Feeding Experiments,—

Puppies and kittens, mice and rats are usually recommended for this purpose, but it must be admitted that all of these animals are capable of eating food that no human being would ever attempt to eat or would dare to eat, or if they did eat it they would suffer dire consequences. If on the other hand these animals were poisoned by the food we would have strong evidence against it. With these points in view, as a test feeding must be placed amongst the less important ones, but might be used as a confirmatory test.

Human feeding:—this has much in its favor if victims can be got, but even here individual susceptibility must be taken into account. Many human beings have been known to absorb without ill effects large quantities of certain ptomains in quantities considerably above what is considered normal in man. Again, a healthy man might easily take care of such a quantity of ptomain without harm to himself as would certainly kill the sick or the infirm or the young, and these must be guarded as well as the strong.

But again if these feeding experiments proved positive, much strong evidence would be obtained against the food in question.

Finally if a "whole run" of goods is to be condemned it is obviously impossible in practice to make examination of each package. I would suggest that one package out of every thousand be taken, an equal quantity of material taken from each can and this as thoroughly mixed together as possible and from this that a retest by the bacteriological, the injection and the ammonia test be made, and if found positive, especially the injection test, condemn the whole run. Another method would be to use the Stass-Otto test for the extraction of ptomains, and on this being positive condemn, but this would be of no value if negative.

The regulations in connection with the guarding of all substances such as tongue and chicken, etc., should be very strictly adhered to, so that no spoiled stuff goes into cans.

FEDERAL INSPECTION BASEBALL LEAGUE.

Local interest in the Federal Meat Inspectors baseball league of Toronto increases apace. Competitive teams have now played off all preliminary matches, leaving Swifts and Davies Packing House tied. The winning team will eventually be matched against Gunns early in September for the silver cup presented by Dr. F. Torrance, Veterinary Director General. It is understood and hoped that Dr. Torrance will be in Toronto to present this cup to the winners.

There is no reason why the Inspectors baseball league should not become, in the future, an Inter-Provincial League when District and Provincial champions would meet the winners from other Provinces.

Dr. Torrance's sportsman-like interest in presenting a challenge cup has created a great deal of pleasure among the Inspectors and has been much appreciated by management of the different Abattoirs represented.

The silver cup is to be competed for annually.

Pictou Cattle Disease*

WITH SPECIAL REFERENCE TO THE SYMPTOMATOLOGY.

**By W. H. Pethick, District Supervisor for Prince Edward Island,
Health of Animals Branch.**

An outline of Pictou Cattle Disease is now probably more of historical than practical value. A comparatively few years ago, Pictou Cattle Disease was responsible for much wastage, especially in the vicinity of Pictou. The disease in this country was not entirely confined to this vicinity for it was discovered near Souris and other parts of Prince Edward Island in the year 1903. Other observers have described this peculiar malady, notably Gilruth of New Zealand and Chase of South Africa.

Up until 1913, or thereabouts, the etiology of hepatic cirrhosis of cattle was clouded in much obscurity and authorities were divided into at least two different camps. Some contended that this malady was primarily due to a specific organism, but others thought that the disease was produced by poisonous weeds.

The early history of Pictou Cattle Disease is shrouded in mystery, but according to historical data obtained from the older inhabitants of Pictou, the weed was brought from Europe in a ship that harbored in Pictou, from whence it spread to West River, Green Hill, New Glasgow, Fraser's Mountain, Merigomish and along the Gulf Shore into Antigonish County as far as Cape George. Careful observers noted that the disease did not exist outside the weed limit, in other words, where there was no ragwort there was no Pictou Cattle Disease.

Because of the apparent relationship between ragwort **(Senecio Jacobaea)** and the so-called cattle disease, the Health of Animals Branch decided to begin experiments at Antigonish in 1903 for the purpose of determining the causal relationship between this weed and the disease. These experiments promised results since it was previously found impossible to transmit the disease to healthy cattle by experimental innoculation of body fluids taken from affected animals.

In these experiments, 16 head of cattle were kept in a stable especially built for the experiment and were fed on hay from Pictou. Sixteen controls were kept in an old stable in which cattle had previously died from the disease. This latter group were fed hay which was brought from Quebec where the disease was then unknown. The control animals remained healthy for 23 months, though they were in constant contact with diseased animals and in some few cases were even inoculated with the blood and ascitic fluid of animals that had died from the disease. At the end of the experiment these control animals were slaughtered and their organs were found to be quite normal. Out of the sixteen animals that were fed hay from Pictou, fifteen died of the disease and typical lesions were found upon post-mortem examination. When the last animal of the group was slaughtered at the end of 26 months, it too was found to be affected with the disease. A further experiment showed that when chopped ragwort was fed in the "ragwort-free" hay from Quebec, this mixture was capable of producing acute cirrhosis in 12 months, while the controls fed on Quebec hay alone remained healthy.

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* Presented at the Annual Meeting of the Prince Edward Island Veterinary Medical Association, 1921.

Similar experiments were performed by Gilruth of New Zealand and Chase of South Africa, and it is now accepted that poisoning by different species of senecio was responsible for Pictou Disease in Canada, Molteno Disease in South Africa and Winton Disease in New Zealand.

Evidence has been deduced to show that these weeds are the primary cause of hepatic cirrhosis of cattle, but before making any unqualified statements regarding the etiology of the disease it was necessary to find out what substance was responsible for the production of the typical lesions observed in the disease.

A great deal of work has been done in the chemistry of ragwort and the work of Professor Arthur A. Cushny of the University College, London, England, undoubtedly shows that the toxic principle of this weed is an alkaloid to which the name senecifoline nitrate is given.

In experiments with solutions of the alkaloid, Cushny found that he could produce, experimentally, symptoms and postmortem findings that were similar to those found in naturally affected animals. This observer states that there can be no question that the same causes were responsible for Pictou, Winton and Molteno disease, and that these diseases may be regarded as the result of more or less chronic poisoning by the senecio alkaloids.

The details of our experiments in Canada were described in a special report in 1906. This report, however, was primarily concerned with a discussion of the possible etiology of the disease. Little attention was then given to the symptomatology as observed during our experimentation.

Symptomatology.

Since the disease may again appear, it seems advisable that the clinical aspect of the disease should be described in detail in order that veterinarians who have not had the privilege of personal observation should be acquainted with the typical clinical picture.

After having many cases under close observation we are convinced that with the majority, the acute symptoms precede death by only one to three weeks, the development of the disease is progressive and runs a much more chronic course than was previously believed. To the careful observer certain premonitary symptoms may be observed which are at least sufficient to arouse suspicion. There is a peculiar bleached appearance of the hair which leaves it lusterless; preference for solitude, irritability, general nervousness and occasional chills, even when kept in moderately warm stables. A diseased animal when turned out will shiver under temperature changes that do not affect the healthy animals in the herd. The bowels are irregular or constipated; the pulse at this stage is soft but strong. The temperature is somewhat above normal but rapidly falls upon exposure to cold

While I do not claim that the above symptoms are positively diagnostic, yet particularly when accompanied by progressive emaciation, are, as I stated before, very suspicious and have been observed (though varying in degrees) in all cases of cirrhosis that developed in the experimental cattle at this station; and by noting these changes, I have been able to diagnose incipient cases months before the more characteristic symptoms were manifest.

The more pronounced symptoms usually develop after the animal has been at pasture for a few days or weeks. The great majority of cases occur during the early summer. Heat seems to aggravate the disease, and I have noticed that calving, castration, hot days followed by cold nights, worry from flies, the laxative effect of new grass, or in fact any change that tends to produce constitutional disturbances, hastened the development of more acute symptoms, which I will endeavor to describe.

If the patient be a cow in milk, her owner will probably state that the first change noticed was a rapid loss of milk, (may go completely dry in three days) which tasted bitter and gave off an unpleasant odor. The animal, if at liberty, will probably be found in the fence corner, or, when possible, under the bush standing quietly or lying down. If driven away a peculiar flexion of the knee joints will be observed, the feet being raised higher from the ground than usual. The action, however, is very slow and the animal seems to hesitate at each step; shows no inclination to join the herd, but rather a desire for concealment and will select, when possible, the most unusual places in which to hide, such as plaster holes, swamps, caves and such like.

We next notice that the hair has the appearance of being slightly greased and then combed the wrong way. It rubbed, a peculiar persistent odor clings to the hand. The visible mucous membranes are pale, often slightly yellow. The eyes are exceedingly bright. This is a most constant feature, and there is usually swelling of the lower eye lids. The abdomen, in the majority of cases is pendulous, as though containing a considerable weight, due to serous fluid in the peritoneal cavity. If diarrhoea is present, which is common but not invariably the case, the temperature will be slightly subnormal. If constipated, slightly increased, but never high. The heart palpitates, pulse about 70 and hard. Respiration deep and about 24 to the minute. So far the animal seems to suffer very little and although the appetite is impaired, may pick grass. Rumination, however, has ceased and there seems to be a difficulty in swallowing. Except for the progressive emaciation, which is an almost constant feature of the disease, there may be little change noticed for five or six days, when a change for the worse takes place rapidly and at this stage it will be necessary for clear description to divide the sufferers into two classes—the violent and the quiet class.

If the former, the animal will now be almost constantly in motion, occasionally shaking the head, which is carried rather high, sometimes stopping to take a bite of grass, but appears unable to swallow, probably due to spasms of the oesophagus. The amaurotic condition of the eye is very pronounced and upon close examination extravasations into the conjunctiva may be observed. The extra flexion of the knees (already mentioned) is very conspicuous, due, I think, to imperfect vision. The respiration is now deep and irregular. The pulse is very fast, 90—100 and intermittent, temperature about normal. In the course of 24 or 30 hours the violent cerebral symptoms are usually much aggravated. The animal seems to have gained new strength, often becoming dangerous, may break from the enclosure, running madly about until completely exhausted. Loss of coordination of the muscles sets in. The hind quarters become weak and paralyzed and the animal will stagger about, eventually falling. Death is usually preceded by coma.

If of the quiet type, which is the form usually met with in weak subjects, the animal will now be found lying down and presenting a very pitiable appearance. The symptoms before mentioned as common to both classes, are intensified. The head is kept slightly to the side. The visible mucous membranes are pale, often slightly yellow. The mouth contains sticky saliva, which escapes at intervals. In these cases there is usually diarrhoea, which is dark and very liquid. Prolapse of the rectum and occasional tenesmus are almost constant features. Urine is scanty. If disturbed the animal gets up with difficulty and walks with staggering gait, showing much muscular incoordination. The pendulous condition of the abdomen is very noticeable, showing the rapid increase of dropsical effusion. The sub-maxillary tissues appear dropsical. The eye, though amaurotic, is not so bright as in the violent form of the disease, and I have never noticed the hemorrhagic condition of the conjunctiva, which is common in the violent type of the disease. If permitted, the animal soon lies down and becomes semi-comatose or at least indifferent to its surroundings. There is occasional twitching of the muscles. The skin is covered with cold sweat. The pulse is fast, weak and very irregular. Respiration slow, deep and interrupted. Temperature slightly subnormal. Death usually occurs in from four to fifteen days after the acute symptoms are first noticed, but this varies according to the condition of the animal at the onset of the disease.

Gross Post Mortem Lesions.

After holding a great many autopsies and comparing notes, I find certain gross anatomical changes almost constant though varying much in degree. It may therefore, best serve the purpose of this paper, if I give post mortem notes of a typical case.

Animal No. 11.—Exhibiting the usual clinical symptoms is killed by cutting carotid artery; the blood is dark and coagulates quickly and forms a firm clot. The skin is easily removed, the muscular tissue is soft and flabby and has a slightly yellow tinge, peritoneum is normal. The peritoneal cavity contains about six gallons of straw colored dropsical fluid, which slightly thickens upon exposure to the air. There is marked wasting of the mesenteric and omental fat, which is decidedly yellow and infiltrated with fluid. In some places the effusion is thickened to the consistency of jelly. The paunch is half full of food in a moist condition. The muscular walls are somewhat thin and oedematous, the mucosa is dark and soft, the reticulum and omasum are very thin and easily torn; the mucosa is separated in places and hangs in loose folds; is much thickened, and is studded here and there by irregular sized ulcers in different stages,—some recent, some are healed; many of them are pigmented. The remainder of the alimentary tract is more or less oedematous, but no ulceration of the mucous coat is noticed. Many of the mesenteric lymph glands are normal in size and structure, while others are large and soft. The liver is normal size and firm; it cuts a little tough and on section shows fibrous bands giving it a grey appearance. The capsule is hard to tear off and the exposed surface is granular. The pulp appears cirrhotic to the naked eye. The gall bladder is much larger than normal, walls are thickened and it contains about eighteen ounces of dark green bile. Sublumbar fat is deficient and saturated with serum; kidneys are normal in size, slightly pale, capsule smooth and on section showing nothing abnormal. Suprarenals are also normal, spleen normal in size, but the pulp is soft and easily broken up. Bladder normal and half full of very light colored urine. Pelvic viscera fairly normal, slightly oedmatous. No fluid in pleural cavity, no adhesions. Pericardial sac contains about three ounces of light colored fluid. The heart appears normal. The lungs pale, otherwise healthy; large blood vessels appear normal. Other organs not examined.

"Oh!" exclaimed the fair boarder, as a couple of calves scampered across the meadows, "what pretty little calflets!"

"Yew air mistaken, ma'am" said the old farmer. "Them's bullets!"

Specific Therapy

By Chas. H. Higgins, New York.

When deciding to use any agent in the diagnosis, prevention or treatment of any condition, it is essential to very carefully weigh all of the factors that are involved.

Certain agents possess specific action. Their selection is warranted because they have been known to relieve a certain condition, or theoretically, they should cause an alleviation of the symptoms observed.

Too great care cannot be exercised in determining the utility of an agent. To follow in the footsteps of others is commendable, but blindly following without the requisite reasoning means that the use of an agent is a result of arguments put forth by others.

The man who thinks for himself and then acts on his own initiative is a producer. It is the producer or builder that is required in the veterinary profession to-day. Such a producer investigates, studies, experiments, and gives of his knowledge thus gained for the benefit of the livestock industry.

To deal specifically with a problem is known to be of the utmost importance. To treat animals that are ill, specifically, either collectively or individually is just as important.

The conservation of livestock not only means the specific consideration of their individual ailments it means,—in its broader sense, the study of general health problems as they apply to animals whether they are kept individually or in groups. This latter theme is one to which veterinarians must give an ever increasing amount of their thought that the service rendered man by the various species of animals may be conserved. In this service we have many phases. In past years the horse has been foremost. While horses are less frequently observed in certain localities, "iron horses" have not entirely taken their place and gasoline does not by any means as yet constitute the sole motive power. Horses will always occupy a place in the economy of men. Perhaps not as a beast of burden, but as an agent which will contribute to his enjoyment.

There are other animals without which man would find existence difficult. Cattle render a service in the production of food and we must not lose sight of other food producing animals whether domesticated or wild.

Many species of animals contribute to the enjoyment of man through association and the protective influence which they exert. The lessened number of wild animals has led man to propagate them in captivity, primarily for their fur. Other wild animals are captive in zoological parks as a part of an educative system in acquainting a given locality with the types of animals that are to be seen in remote portions of the world.

Each phase of the problem constitutes its part of the whole and the veterinarian who is not conversant with at least a portion of the problems presented is unable to give to any one species of animals the specific treatment that it requires.

In a discussion of such a large series of problems it is seen that there are but few that may be dealt with in detail. The main problem underlying all is the prevention rather than the cure of disease, yet it is evident that the recovery from any diseased condition is highly desirable.

There is in Canada a monument of achievement to the specific treatment of a fundamental disease problem that has in a measure been over-looked. In this I refer to the outstanding results following the drastic dealing with the problem of glanders in horses. Well do I remember the difficulty of dealing with this infection twenty five years ago. Cases of glanders were seen, yet they were only found by traveling circuitous routes. Such cases as were observed in Montreal unwillingly found their way to the "Kennels" where they were served to the hounds that assisted the master and a coterie of huntsmen in speeding the elusive fox to his lair. That the problem was not attacked with vigor at that time was largely a result of there being no means of diagnosing this condition that did not leave some doubt in the minds of the veterinarian. With the discovery of mallein in 1894, and the experimental work that followed, it was evident that here was a means of diagnosis possessing great value. There is no doubt but that Dr. McEachran, the then head of the Cattle Quarantine, recognized the value that it possessed but the facilities offered and the many other more attractive interests to command his attention rendered it impossible to have this work pursued with the vigor necessary to control such an insidious infection.

In 1902 when Dr. McEachran retired there was a transfer of the work from Montreal to Ottawa and Dr. Rutherford was appointed as the Veterinary Director General. The creation of the Health of Animals Branch followed. It was at this time that the writer was transferred from Montreal to Ottawa and this marked the establishment of the present Biological Laboratory which since its inception has proven such a valuable adjunct to the equipment of the Health of Animals Branch. It may here be mentioned that the experimental work on animal diseases while having been given attention for ten years previously, did not boast the services of a full time investigator until 1899 when the writer entered the Federal Government service. The Animal Experiment Station at Outremont then provided facilities for large animals.

Shortly after Dr. Rutherford had assumed control of the Branch, (in the fall of 1902), it was found that we had a considerable nest of glanders near the offices in Ottawa. This meant that action must be taken. A result was that Dr. Rutherford had an Order in Council passed enabling the destruction of any animal clinically affected with glanders. It was the writer's privilege to condemn and destroy the first animal under this order. Following this was an Order in Council making mallein (subcutaneous application) an official diagnostic agent. At that time it was the writer's duty to perform autopsies upon animals that were clinically affected. A certain Ottawa physician, who has since passed to his reward, was much interested in the autopsies and as a result furnished transportation for the privilege of being present. In these migrations it developed that his own horse had been quartered in the stable from which glandered horses were being taken. Learning the history it was but natural to suggest a mallein test. The test was applied and never has a more typical reaction been recorded either in thermal or local manifestations. This was at a period when the full understanding of mallein was in the transition stage. The order required three tests, at intervals, before condemnation. A second test gave a result similiar to the first. A third was applied after the required interval and a reaction was again recorded. The fate of the animal was sealed. This with two other horses that had reacted similarly were the first to test the validity of the new order.

Well do I remember an evening visit to my physician friend for the purpose of conveying the news that the steed that had safely conveyed us both to many autopsies must pay the penalty for having contracted glanders. Accompanied by Dr. A. G. Hopkins, (then an Inspector in the Department and now practicing at Surbiton, Sask.), the fatal papers were served and the time set for the execution which was completed without further incident. I mention these details as it is now difficult to comprehend some of the difficulties which beset this early and epoch making determination of Dr. Rutherford to rid Canada of Glanders. It was all the more difficult, for, up to this time, there was no provision for compensation and those who lost their animals sacrificed them without reimbursment and naturally were not any too well pleased with the process. Persuasion was the only weapon for soothing an injured owner. What would happen today if it was decided to condemn and confiscate a Ford for nothing more tangible than an infectious rattle?

It was from this small beginning that the work extended and ten years later it was necessary to send outside of the country for cultures of the glanders organism with which to continue the preparation of the mallein needed for diagnostic purposes. Canada is now practically free from the ravages of glanders and has the distinction of being the first country to take drastic measures in eliminating the infection. The credit for the conception of the gigantic undertaking belongs to Dr. Rutherford. It was foresight of a character that comes to few men. He had the conviction that the theory was right and convincing others in authority secured the necessary appropriations to carry out the work.

Roughly estimated this work probably cost a million and a half dollars and at that it was a very economical investment.

This work with glanders represents specific treatment, for in mallein we have a diagnostic agent of unquestioned value. While the mode of application has undergone some minor changes, the fundamental principles in the diagnostic tests are similar. Dealing with Glanders in other fields has followed that in Canada and wherever the action has been pursued with vigor the results have been satisfactory, not only from the control point of view but also from the economic viewpoint as well.

No single instance of control work with which I am familiar exemplifies in quite the same degree the original thought and singleness of purpose exemplified in the stamping of glanders out of Canada. This was specific therapy of a high type and other problems of equal import are to be observed in connection with other diseases and their control.

Tuberculosis has received a great deal of attention on this continent during the past few years. Some headway is being made but it seems that there are still many facts to be more closely studied before the full import of certain happenings with which we are all familiar can be fully explained. Here is where specific therapy must be based upon sound reasoning. The economic loss is such that the money spent would be a mere trifle. We know that certain factors have reduced the incidence of tuberculosis of certain types in the human being. A controversy of long standing upon the nature of the tubercle bacillus and its transmissibility from one species of animal to another is still unsettled. Statistics reveal in New York city that glandular tuberculosis which was very prevalent is now a rarity. This result followed the pasteurization of the milk. Here is an argument for the contention which I have always maintained, namely, that tubercle bacilli wherever found are the same. Their maximum virulence is seen in the bovine and when you increase or decrease their temperature environment you have a weakening or attenuation of their vitality. This is seen in birds whose temperature average 108 and in the human where the temperature is 98 1-2 deg. F. Go still further and you have the attenuated organism of Friedman fame in the turtle, which was considered innocuous.

Tuberculosis is a MAN'S problem. It needs study. This study must be original. It will require time. Time means money in sufficient amounts must be available to permit sound results to follow. This is no reflection upon the work now going forward which must continue. With the attacks from the various angles we may be nearer the ultimate solving of the real problem than any of us now realize.

Another disease of cattle has made headway, namely, abortion. Methods of disinfection have held it in obeyance but they have not eliminated the loss of progeny. The infective agent described by Bang is a recognized factor. Treatment, with living specific vaccines prepared from this organism, has greatly lessened its incidence in Great Britain under the guidance of Sir Stewart Stockman. A vigorous policy in other centres has lessoned the condition and increased the calf crop. Sir Stewart Stockman is quoted as stating that the livestock men of Great Britain would not permit him to stop this method of treatment. What is good insurance in one locallity should be good insurance in another. It it, therefore, to be expected that the use of a live vaccine under suitable conditions and restrictions will tend to lessen the disease on this continent as it has in Great Britain. It is well worthy of a trial.

Other problems relating to specific therapy could be cited. I have dealt with a few concerning which I have the most intimate knowledge and association. Each veterinarian should become a missionary upon specific therapy and persist in his effort along one or more given lines. Such effort consistently followed with the report of the results secured at Association meetings will do more to uplift the individual and the profession to which he is identified than an equal amount of time spent in drafting legislation to keep another man from gaining entrance, except by the right number of clicks on the knocker. Legislation is desirable. It must not, however, dwarf the investigating instinct of the individual. It must tend to broaden and develop; and, like a flower unfolding, leave a something behind that will make the world a better and safer place for all mankind.

ROYAL AGRICULTURAL WINTER FAIR ASSOCIATION OF CANADA.

The agricultural interests of Canada have at last succeeded in establishing a national winter fair with headquarters in Toronto.

The home of this winter fair is at present under construction and will cost upwards of one million dollars. This building, together with subsidiary buildings, is designed to house approximately 600 horses, 1,200 cattle, 800 sheep, 1,000 swine, 9,000 chickens together with sufficient space for exhibits of flowers, fruit, honey, vegetables, grain and dairy products. The arena is the largest of its kind on the American continent, if not in the world, having a ring 131 ft. x 102 ft. and a seating capacity of approximately 7,500 people. The first annual Winter Fair will be held from November 16th to 24th, 1921, with a premium list representing approximately $70,000 in cash prizes. A special feature of this Winter Fair will be the exhibition of horses which will include heavy and light breeds in both breeding and harness classes. The light horse exhibit will be particularly attractive in that there will be exhibits from across the line as well as from many of the best stables in Canada.

In the interests of live stock, it should be the duty of every veterinarian to encourage breeders and feeders of live stock to exhibit at Canada's National Winter Fair and to encourage as many people as possible from his district to visit the Fair and become acquainted with the types and breeds of live stock that should be found on more of the farms of this country. It is true that the live stock industry is passing through a very critical period of its history and there never was a time when there was more need for such an institution as the Royal Agricultural Winter Fair to encourage and stimulate the breeding and feeding of better live stock.

If you wish to secure a Premium List communicate with C. F. Bailey, Managing Director, 110 University Avenue, Toronto.

The Light Horse Breeding Industry*

By Major R. S. Timmis, D.S.O., R.C.D., Stanley Barracks, Toronto.
Author of Modern Horse Management, etc.

We hear a lot of nonsense about the everlasting peace and the doing away of armies, but no one except the most short sighted would believe that peace could be secured, for many decades at any rate, unless all the Nations are prepared. Had the Empire been prepared in 1914, it is probable that the great war would not have taken place, and if it had, its duration would have been halved. Canada in the future, if called upon to take part in another war will have a different role to perform. It seems most unlikely that there will be another war of Position, but more likely, whether we fight abroad or at home, that it will be one of movement. It is therefore reasonable to assume that Cavalry, Mobile Artillery and other horsed branches of the service will be needed as much as ever.

The question then arises as to where we shall get our horses from on mobilization. After having spent some time in scouring the country for suitable remounts for Cavalry and Field Artillery, it became perfectly evident that there are very few suitable horses to be had in Ontario and, from what I hear, in other Provinces as well. There were not a great many of such suitable horses in Canada in 1914. In proportion to the horse population of Canada the number of suitable army horses was small. All kinds had to be taken, and large sums were paid for many. Those who spent many years in France know well the terrible misfits that were sent to the front, and how expensive they were to the country on account of their unsuitability to carry weight.

The point I wish to emphasize is that the average Canadian farmer does not breed suitable horses for the saddle or for light artillery work. He well knows how to breed heavy horses, because it pays him to do so, and also because he takes an interest in the type of horse that he uses himself. But when it comes to the type required for the army, where is his encouragement? There is not a big market for such horses, it is true, but I do think that if such horses of good type were bred there would be a good enough market to make it worth while.

At present the average farmer does not study sufficiently the question of mating the mare with a suitable stallion. Hence the large proportion (some 80 per cent. of those I examined last winter) of unsuitable horses.

The chief faults are narrow chest, narrow loins and pelvis, weak hocks, badly placed-on heads, bad feet and short pasterns. Other less common faults were found of course. I think the worst fault to be found in Ontario amongst the light breeds are the narrow chest, narrow pelvis and long back with a consequent slack loin, in other words "a missing rib". The high percentage of long-backed, loosely coupled, narrow-chested horses is due to the mating of the Standard bred strain mare with a poor class of stallion that is also weak in these particular points. These mares require to be mated with a stallion that has extra width and a short back. If the farmer would realize this we should see a very different class of horse offered to the remount purchaser. There are far too many cheap stallions travelling about, with the result that a great many farmers take the cheapest, entirely regardless of the suitability of type.

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*Read before the winter meeting of the Ontario Veterinary Association, Feb., 1921.

Let us now consider the cardinal points that the army horse should possess:—round barrel, deep and wide chest (so essential for a large lung area and heart), broad quarters, and well ribbed up in the flank. Then we should have a sloping shoulder, longish neck, thin at the top, good feet, well matched in pairs, a deep hock, well let down, fairly long pasterns, and a good wide healthy frog. The eye should be full and kind, ears well apart and head not too large, but wide at the forehead. What we want and what every farmer really wants is the cobby type as against the all too common long herring-gutted type. The cobby type keeps fit on half the rations and this alone should appeal to the business farmer.

As in all other sciences and professions, the correct methods must be taught, and this can only be learned by study and work. The feeling that because a farmer has been breeding horses for twenty years, he has nothing to learn must be dispelled at once.

Propaganda in the press and in agricultural and horse journals and lectures given at colleges by those who understand their subject and at farmers' meetings are absolutely essential to instruct the breeder in this important art and science.

At the same time while the farmer is learning what a good light horse is, he must be assured that it is going to pay him to breed such horses. There are various ways, but I venture to suggest that one solution is as follows:—That the Government supply a certain number of suitable stallions who will travel the country and serve approved mares at a low figure (say $5.00). I say approved mares because it would be absurd to waste the substance of a good stallion on some of the nondescripts that we see farmers breeding. This would wipe out the nondescript useless type of stallion. The approval of the mares would not be an easy task, but this difficulty could be overcome by having a few specially selected inspectors or by enlisting the veterinarians to do this. Whoever approved a mare would have to sign a declaration so that in later years if a certain mare was considered to be of the wrong type, the authorities at Ottawa could find out who had certified it as being suitable in the first instance. This would eliminate to a great extent the likelihood of dishonesty amongst the inspectors. Mares, of course, who possessed the above bad points to a marked degree would not be allowed to be bred to the Government stallions.

Further the farmer would have to be guaranteed that at three years old if the foal was well cared for, the Government would give a reasonable sum for the same (say $200) as the absolute minimum at the present price of horses. The present price allowed, $200 for a four or five year old will never encourage a farmer to breed horses, it would pay him far better to breed cattle. The price would be raised to $300 or thereabouts if the horse were kept on the farm until it was four or five years old. The farmer must be paid sufficient to be able to feed the horse properly, and if anyone will only work out the present cost of hay and oats and the amount a young horse should be given if it is to be developed, one will readily realize the cost to the farmer. At present the average young horse is only fed on straw. This is a downright shame and a very foolish waste of the country's produce, because if a horse is not brought up on proper food it will not develop any more than the child will that has been fed on poor food. The average farmer surprises me very much on this point. My impression is that they do not think it necessary to give the young horse any thing more to eat than straw, and some farmers actually work the animals in the buggy while feeding on such miserable stuff. No wonder we have such a shortage of good light horses. The farmer would further have the option of selling the young horse to civilian buyers at a higher price if they had the opportunity, and thus make quite a nice little profit, because they could sell every fourth well bred horse for the sum of $500 to hunter purchasers. It stands to reason that the best horses would be picked up by private buyers. But we should have to do all we could to prevent the best from going over to the States.

It seems to me essential that to make the farmer breed the horse that we must have we must ask him to consider a business proposition, and with that we must educate the breeder as to what we want and what it will pay him to produce.

THE WATER SUPPLY FOR ANIMALS DURING THE EGYPTIAN CAMPAIGN.

(By a Veterinary Officer).

Early in 1915 the Turkish forces, aided by the Germans, were launched against the Suez Canal—the main artery of the British Empire, connecting Australia, New Zealand and India with the Mother Country. In February a small force of the enemy reached the Canal and was driven back, but in order to protect this vital waterway it became necessary for the British to launch an offensive. This meant pushing forward over 150 miles of desert, which marked the beginning of the long, weary months of fighting on the Sinai Peninsula, known as the Desert Campaign. Canada can little realize those awful days of suffering, both for man and beast.

During the summer of 1916 I visited every part of the Sinai front, and in no part of the war zone have I seen men and horses undergo greater privations and hardships. Every gallon of water had to be carried forward in great tin boxes, called "fantasses", and in time the British mustered the greatest camel transport the world has ever seen, running into tens of thousands of burden beasts.

On the desert the army had not only to fight the Turk, but the heat, dust, flies and thirst as well, and the worst hardship of all was the unquenchable thirst. Only those who have gone into the desert really know this awful, unbearable, ever-gripping, burning thirst.

All this leads up to the question of what was the daily allowance of water for man and beast. When holding a line for any length of time, or in a standing camp, the allowance was one gallon per man a day for cooking, washing and drinking. With regard to horses, on their arrival in Egypt they were trained to drink only once a day and seemed to thrive as well as those being watered three times a day. During a forward push, when water could not be carried up fast enough, I have seen men go as long as thirty six hours without a drop, and horses as long as forty six.

One might ask what was the condition of these animals after their hardship? Could they go on and work; and with what results? Yes, they had to go on and on for days, but at the end of two weeks we were rushing hundreds of debility cases down to hte base, which took months longer to recuperate than debility cases from other causes.

"Are you Dr. Smith?" "No, but I know where we can get some."

Contagious Abortion and Sterility in Cows

By J. N. Pringle, Toronto.

I will first give my experience in connection with abortion in cows, that type called contagious abortion and caused by the Bacillus abortus Bang.

It is needless to dwell on the history of the disease. Contagious abortion is causing great losses amongst the live stock in Ontario to-day. It is not only the calves that are lost, but as a sequel many of the best cows are lost. A few die from metritis and others are rendered permanently sterile which also means lost.

The disease sometimes rages in almost epizootic form. On one farm where there are usually from 70 to 90 cows, amongst which contagious abortion prevailed some years ago, there are several cases of abortion each year, I have wondered whether B. abortus was not still present, and the cause of some of the cases that occur. There are many causes for abortion as all know, yet perhaps one does not usually think in the right way about the matter, as a foetus in its antinatal existence is subject to diseases, accidents, deformities etc. just as the individual is subject to them during its post natal existence, though of course not to the same degree.

I have reasonable proof that bulls can transmit the disease to healthy susceptible females, becoming infected themselves, by breeding infected cows, and cohabiting with them for a length of time.

Bulls occasionally suffer from abscess in the seminal ducts, which is primarily due to B. abortus. Such bulls may transmit the disease during the early days of their infection before the disease renders them sterile or impotent.

Regarding the treatment of the disease:—

There is only one possible way in which the disease can be cured. Drugs are useless. Sanitary measures are helpful at all times, but are not sufficient in themselves to cure the disease within a reasonable time. Yet this can be done with reasonable certainty by the use of a biological product, a Bacterin. In order to discuss this point fully, or the point of curing the disease it would be necessary to go into the history, nature and the various habitats of the causative agent. This is quite unnecessary here as same are very well known to all. I use the word cure rather than eradicate, as it seems best suited to the purpose of this paper. I will give the result of the treatment of over one hundred and thirty breeding cows, and will include the effects of the treatment on calves and bulls as all were treated alike; calves have B. abortus in alimentary canal.

The barns or stables were first class, herdsmen were interested and intelligent so that all sanitary measures were carried out in the most perfect manner, and I desire to emphasize the importance of same.

No doubt these measures as carried out did a great deal toward obtaining the results, most sanitarians would probably say that sanitary measures if properly carried out would be 50 per cent or more of the cure or eradication as well as the principal part in preventing its spread, with this I will not disagree, in fact I believe it.

Sir Stewart Stockman in Great Britain in experimenting on this disease found that to vaccinate females two months before breeding, with a culture of the live organism gave immunity to a considerable degree from the actual act of abortion, to what extent it gave immunity against the invasion of the B. abortus in an ordinary way, or in we might say the natural way, I have not learned. I think that vaccination is dangerous, as the organism when it gains entrance into the body of the bovine female, stays there for an indefinite period, though the female so infected may abort only once or not at all, yet for a considerable time, perhaps years she is capable of transmitting the disease to healthy females which may be stabled with her, that is, should these females be susceptible.

This female though she may have carried her calf to the full normal term is still a carrier of the disease, for just how long has not been determined.

An animal vaccinated with the live organism may have insufficient resistance or natural antiseptic power to overcome the vaccine, some of the bacteria therefore remain alive in the system of the animal and cause that animal to be a carrier of the disease and capable of transmitting it to susceptible animals; supposition but probably correct.

The treatment along with sanitary measures which I have used is a bacterin, and which has proved very efficient, was prepared by collecting the bacteria from many sources in Ontario, sources where contagious abortion was proved to exist, both by the number of aborting cows in the herds, and by the tests of the blood, viz. complement fixation and agglutination.

B. abortus was recovered from the uterine discharges, the stomach and heart's blood of the foctuses of many different affected animals. Where the cultures of the organism were not pure when obtained, it was grown a second time in medium containing 1-10,000 of Gentain Violet, which inhibited the growth of practically all other organisms, especially those which are Gran positive, but whether it was or was not pure matters not, as the product has given almost perfect results, in most cases.

In October and November 1920, I treated with this bacterin about 130 breeding cows, treating at the same time all young stock including calves and bulls, old and young. Amongst these animals I will limit myself to say that every susceptible cow was aborting. I will not take time to explain this, as every one knows my meaning. The disease existed in these herds in the most virulent form, and had been existent for over a year, the cows aborting at all stages of pregnancy. Of the calves born alive some died, 50 per cent more were sick, suffering from white scours, gastric derangement, even pneumonia, and swollen joints, etc. Very few were thriving well, none were just as well as they ought to be. The calf pens had the usual bad odour, in fact it was unusually bad, one could smell it when entering the stable from the far end from where the calf pens were situated. All animals were injected with the bacterin, cows, heifers, calves and bulls, cows at all stages of pregnancy unless due to calve within two months and these were treated with a different bacterin. One cow aborted several days after treatment delivering a dead calf which had been dead for over one week, at least that was our opinion.

Two weeks after treatment, the calves improved in health, all sick ones recovered. Of course they were treated medicinally. The pens lost the foul odour; four weeks after treatment all calves were thriving well. None were sick including those born since first treatment. Since then no other cow has aborted and no calf has suffered from any ailment, all have thrived well, most of them very well, and no deaths have occurred.

One point of interest here and which will again be referred to is that two young cows showed signs of aborting, and were immediately given a second dose of the bacterin, when all signs of parturition viz. "flushing of udder, relaxation of vulva, etc.", passed gradually off, abortion not taking place. One young cow in another herd did this three times, and was each time given an injection of the bacterin with the same result. She has since calved normally dropping a good healthy calf.

I believe that all three cows would have aborted had the bacterin not been administered. Should the disease have caused the death of the foctus, which only too often happens, the bacterin could not have prevented the abortion. This is a point also which is impossible to discuss here, viz. antinatal death and its causes differentiated from contagious abortion.

I had the blood of six of the cows tested by agglutination and complement fixation tests. Five were positive and one negative. The blood was taken from the cows at random, except that recently aborted cows were avoided.

The organism is 1 to 2 micra broad by 3 to 8 micra long. In culture it is poly morphic, branched and club shaped formations being sometimes found. It is believed to be non sporebearing, though it sometimes shows polar granules, it is non motile, stains readily with any of the aniline dyes in aqueous solution. Pure cultures are sometimes got from the heart's blood of newly aborted foetuses. Its favorite pabulum seems to be in the adult body, some newly secured albuminous fluid e. g., uterine milk, mammary milk or the semenal fluid of males. It disappears from the uterus of cows in about 14 to 21 days after abortion or parturition has taken place.

The question is one which I cannot at present answer, though I am inclined to give a very favorable opinion as to whether this bacterin actually destroyed the B. abortus in the system of the animals treated, and so given a permanent immunity. Of course I do not mean to suggest that it, or any other product will ever be found to be 100 per cent. perfect, and then there are the three cows that showed signs of aborting, the act being prevented by a second injection of the bacterin and and so gives a permanent immunity. Regarding the animals referred to in this paper this point will not be cleared up as the owners definitely state that each cow will be given a dose of the bacterin at next pregnancy, as the cost of the bacterin for all their cows is not worth the risk of losing one calf. I may add from a personal point of view that I agree with them, as in the course of a couple of years the disease will be eradicated from their herds, also all animals including cows in any stage of pregnancy (unless advanced) that are added to the herds are immediately given a dose of the bacterin as a prophylactic or immunizer.

Let us dwell a moment on the loss to the stock owners caused by contagious abortion. An ordinary priced pedigreed cow say worth $200 to $500, loses her calf, worth $150, then there is the 12 months keep. Should she retain the afterbirth, and suffer from metritis, she may die, or cease to milk profitably. She may become sterile, temporarily or permanently. The first condition I have known to happen to the number of over 20 per cent. of the cows in one herd. Does T. T. the Anthrax, Black Quarter, Haemorrhagic Septicaemia, or all combined, occasion such loss to the owner. A cow that has suffered from contagious abortion worth from $200 to $3,000 or $4,000, if she becomes sterile is only worth butchers price, $40 to $80. One occasionally dies as a result, when the owner is at the expense of burying the carcase.

I am acquainted with several herds of pure bred cattle where only a few calves are lost from abortion each year and am told that these herds suffered from a serious outbreak of abortion some years previously. The probability is that were the cows tested, the majority of the cases of abortion which occur would be due to B. abortus and therefore preventable. I am not forgetting that there are many causes for abortion besides Bang's bacillus as animals in their prenatal existence are subject to disease and accident, just as animals in their post natal existence.

(To be continued in next issue.)

Stable Disinfection and Milk Hygiene

By C. J. Bousfield, Charlottetown, P.E.I.

Strictly speaking, stable disinfection is only one small phase of the very much bigger and more complex subject—milk hygiene. However, we should regard stable disinfection as one of the cogs in the big wheel of clean milk production, and if there is anything wrong with this cog, the machine does not work smoothly, and it is only a question of time how long the machine can run before it must be shut down completely for repairs.

It is now almost half a century since Lister introduced the antiseptic treatment of wounds. Modern methods of sanitation can be traced back directly to Lister's discovery. Phenol, more commonly known as carbolic acid, was the first antiseptic used by Lister, and it is still in use to-day, but like the majority of such substances, it has its disadvantages with its advantages, its undesirable features with those that are desirable.

It is a common practice to measure the strength of a disinfectant as compared with carbolic acid as a standard. When we say that a certain disinfectant has a phenol coefficient of 5, we mean that under identical conditions the disinfectant in question will be five times as powerful in destroying germ life as carbolic acid, or its germicidal value is five times as great as carbolic acid.

A slight distinction is usually made between a disinfectant and an antiseptic. We say that antiseptic will retard or even entirely stop the growth and multiplication of bacteria, but it will not be strong enough to actually kill the bacteria, in question. On the other hand a disinfectant must be strong enough to actually kill bacteria before it can qualify as a disinfectant.

From these definitions it will be seen that all disinfectants would be antiseptics, although the reverse would not be true. It will also be seen that a certain substance might be a disinfectant in a certain dilution and in a higher dilution or a weaker solution it would be only an antiseptic. The terms germicidal and bactericidal are substantially synonymous with the term disinfectant.

There is quite a variety of disinfecting agents. These might be divided, for convenience, into three groups, viz.: sunlight, heat in its various forms, and chemical substances.

Sunlight is always referred to as the cheapest disinfectant at our disposal. This fact should be kept constantly in mind in the construction of dairy barns or stables of any kind where animals are kept. The maximum window area allowable with good construction should be provided for, and where there is a choice, and there is usually, windows on the south side of the barn are preferable to any other side. This fact was in the minds of the officials who drew up the dairy score card in allowing a generous number of points to the dairyman whose barn was well provided with windows. A minimum of four square feet of window area for each cow stall should always be provided.

Besides allowing the entrance of sunlight, which in itself is always desirable, the illumination afforded by the windows will undoubtedly result in the stable being kept in cleaner condition. Dirt that is rendered visible is much more likely to be promptly removed than the filth which slowly but surely accumulates in the dark corners.

Now, the dirt itself is not particularly harmful or dangerous, but for the fact that it may, and frequently does, afford either a resting place or a breeding place for disease producing germs. There are three things that disease producing bacteria require for growth; food, moisture and a suitable temperature, usually that of the body.

With other bacteria, not necessarily disease-producing the body temperature is not actually required, but they multiply at ordinary atmospheric temperature within certain limits. These bacteria are the ones that bring about the decomposition of organic matter, the putrefactive and fermentative groups of organisms. The putrefaction of vegetable matter is usually accompanied by the liberation of gases, many of which have objectionable odors. Such a condition should never be tolerated in or near any place where milk is handled. Heat in its various forms is another disinfectant at our disposal, and one that we should utilize wherever possible. We are depending upon heat as a disinfectant every time we cremate the carcase of an animal that has died from an infectious disease, every time that we scald out a milk pail with boiling water, or every time we sterilize a milk can by inverting it over a jet of live steam. Pasteurization is merely a process of utilizing moderate heat for a given length of time, in preference to higher degree of heat. As a general principle, the higher the temperature the shorter the time required to destroy a given amount of infection.

For example, to destroy the tubercle bacillus in milk the usual time and temperature combinations given are:

140 degrees for 15—20 minutes
160 degrees for 5—10 minutes
176 degrees for 1—2 minutes

The chemical disinfectants might be divided into three groups, according to their material state, namely, solids, liquids and gases.

Certain gaseous disinfectants, of which formaldehyde is an example, are excellent disinfecting agents, but only when the proper conditions are provided. Disinfecting by means of a gas is usually spoken of as fumigating, but from the very nature of the process its success depends almost entirely upon our ability to properly confine the disinfecting gas. This is a difficult matter in the average stable and the time and expense of tightly sealing up all the openings in the stable would probably offset any advantages the method might possess.

Solids almost without exception must be combined with more or less moisture before they are able to exert their disinfecting power. Therefore in looking about for a suitable disinfectant for use in the stable, we are limited somewhat in our choice. Besides the physical nature of the material itself, we must take into consideration its cost and adaptibility for the particular purpose in mind.

Some very good disinfectants are highly poisonous, and must be used only with considerable caution, notably carbolic acid and bichloride of mercury (corrosive sublimate). The latter substance has one great advantage in that it is practically odorless. Against this we have its poisonous nature, and the fact that it corrodes metals. We might go down the entire list of chemicals that have disinfectant properties without finding a single one that did not have some great drawback to its extensive use as a general disinfectant.

The disinfectants usually spoken of as the coal-tar group, a large number of which are available, are generally regarded by most authorities as the best for general disinfecting purposes.

It should be kept in mind that the germicidal power of a certain substance may vary with the organisms it is called upon to destroy. This is due to the resistance to destruction offered by these bacteria. That class which forms spores, anthrax, blackleg and tetanus for example—are extremely hard to kill with any disinfectant when they are in the spore stage.

Carbolic acid in strength sufficient to kill many bacteria will not destroy the germ that causes hog cholera. On the other hand, we have examples where certain germs appear to be highly susceptible to the action of certain chemicals. These facts should be kept in mind and we should take advantage of our knowledge whenever we are called upon to advise or put into practice the theories of disinfection.

There are several diseases which are commonly met with in our dairy herds, caused by bacteria concerning which we have considerable knowledge, the fruits of time-consuming and painstaking study and investigation. This knowledge should be of the greatest possible use to us in the intelligent performance of our duties.

In the matter of infectious diseases of our food-producing animals, and the ultimate eradication of these plagues from the face of the earth, if such a thing is possible, we must learn to regard the diseased animal as the greatest menace to the healthy animals in the herd, whether the disease be tuberculosis, infectious abortion, hog cholera, glanders or any other disease of like nature.

A great deal of the time, labor and expense of disinfecting may be for naught if the source of additional infection is allowed to remain. For instance, if a herd of cows is tested for tuberculosis, and a number of them react, unless all of these reactors are removed from the herd immediately and either destroyed or isolated in a quarantine barn, there is little to be gained by the test or any disinfection of the stable subsequent to the test, as far as the ultimate eradication of the disease is concerned.

You will note that I am careful not to say that there would be no use in such a procedure. I have always been of the opinion that no matter how hopeless a job of disinfecting might appear, if real effort were intelligently expended in the work a great deal of existing infection would probably be destroyed, and the chances for further damage made just that much less. In this connection it might be said that many disease germs probably do not multiply to any great extent outside of the animal body. However, there is no telling how long they may lurk around, awaiting the time when they will again find their way into the body of a susceptible animal, there again to renew their activities along their particular line.

Much has been said and written on the construction of dairy barns, and it is pleasing to note the tendencies of the present day toward building these structures that they can easily be cleaned and kept clean. The floors should receive special attention in this regard. There is much to be said in favor of concrete construction, in spite of the fact that it is frequently objected to on the score that concrete floors are cold and damp in winter and give rise to diseases of the udder. Creosote blocks set in concrete do not have this objectionable feature, are almost as durable and not much more expensive.

Stable disinfection may be either a routine procedure or it may be an emergency. On the one hand it may be said to be a prophylactic measure and on the other a curative measure. We should practice more prophylaxis and not wait until we have troubles at our doors before putting into operation the measures which we expect to help us out of our difficulties.

Most infectious diseases are preventable. Our views concerning the transmission of some of these diseases have already undergone considerable change, and the chances are that before many years we will have to modify still further what are our present ideas on the subject. At the present time the discrepancies are too great in some cases at least, between what actually happens under natural conditions and what appears to happen when we substitute artificial conditions for the natural, in our studies of these diseases in the laboratory.

There is no getting away from the fact that frequent and thorough disinfection of a dairy barn would add to the gross cost of producing milk. Moreover, the results of any system of disinfection are not readily apparent from day to day. For these reasons the average dairyman is naturally dubious about going to the additional expense. However, to those who have given the matter careful thought, it appears to be good business to not stint the use of disinfectants. Intelligent stable management means fewer sick cows, and consequently fewer dead ones. Sick cows are usually non-producers and dead cows have to be replaced. In either event there is an actual increase to the cost of producing a pound of milk. Healthy cows will keep the steadily increasing figures down to somewhere near where it belongs. Cleanliness of the stables is usually reflected very clearly in the health of the animals confined therein.

Now, as the best method of disinfecting a stable, only a few general rules can be given here, because what would apply to one case might very likely fail to apply in the next.

When possible, all animals should be removed from the barn while the disinfection is in progress. All litter should be removed from the stalls, and if the situation warrants the procedure, this litter should be burned as near to the barn as safety will permit. The shorter the distance the litter has to be transported the better. Perhaps the most efficient way of applying any disinfectant in liquid form is by means of a power sprayer, or spray pump similar to those used for spraying fruit trees. For the daily disinfection of floors, alleys and runways, a knapsack sprayer is very convenient.

When the work of disinfection is left to the help around the barn, care should be taken to see that proper instructions are issued especially as to the diluting of the disinfectant. If this is done in a "hit-or-miss" fashion, the solution will be either too weak or too strong. In most cases these dilutions have been carefully worked out and the directions on the label on the container should be followed very carefully, both for the sake of economy as well as efficiency. The most efficient disinfectant may be wasted and its effect lost by a careless operator who fails to follow directions.

A little stunt that may well repay the effort many times is to have a shallow tray of some disinfectant solution located near the door of the barn. This is especially true if the barn is one that is frequently visited by strangers, or if any infectious disease is known to exist in the neighborhood. Everyone entering the barn should be instructed to disinfect his shoes. The practice may also have very desirable psychological value.

The prevention of certain animal diseases has been made possible by vaccination, but it was never the intention of our scientists to have vaccination replace sanitation.

In conclusion I would like to say that locally our milk production and the handling of milk products has considerably improved, but there is yet room for more improvement.

Within the last few weeks there has been scarlet fever in the city. One or other of the local milk dealers left bottles of milk at those houses and took away empties. Now, I know that these milkmen have not enough bottles filled to go round for one day and resort to the filling of the bottles taken from houses irrespective of whether they are placarded or not.

I will be pleased to assist the Board of Health at any time in the suppression of practices which are a menace to public health.

CLINICAL and CASE REPORTS

PERONEAL TENOTOMY.

A very valuable hunter but quite unsaleable owing to having stringhalt in both legs. The animals gait was extremely exaggerated.

Operation.—Animal placed in the stocks and the usual preliminaries including shaving the part over the site of the operation with a razor. After painting with iodine tincture, injected apothesin (5 per cent solution.) After 20 minutes to secure the maximum anaesthetic action from the apothesin, both peroneal tendons were divided. Wound healed very quickly and this date three months following the operation, the animal trots sound. While I like apothesin as a local anaesthetic, I dislike the oedema it produces locally over the site of the injection.—Reginald Vickers, B.V.Sc., The Plains, Virginia.

LACERATED FLEXOR TENDONS IN A POLO PONY.

The subject was a valuable polo pony worth $3,500.00

History.—Jumped into a ditch whilst being led into the polo field and evidently ran into a stake or some sharp object. Off hind leg was injured in the median line about one and a half inches below the ergot.

The pony was played afterwards but finished up dead lame and was brought into my Infirmary on June 14th, suffering great pain. The flexor tendons were badly lacerated and the sesamoid synovial sheath was open.

Treatment.—Antitetanic Serum, immediately. Constant hot applications and wound irrigated with tincture of iodine. For two weeks the pony was in great pain, sweating and continuously elevating the affected leg and unable to place any weight upon it.

The oily discharge somewhat diminished during the second week and the limb was still swollen. The hot applications kept it below the hock. We used Park Davis stock bacterins and maintained the hot applications but less frequently during the third week. July 1st showed a great improvement, the pony placing quite a bit of weight on the limb. The pony was then shod with a high heel, bar shoe, on which it rested comfortably.

July 14th pony can now stand on affected leg and fight flies with the sound leg. At the time of writing the pony is almost ready to discharge back to the owner. During the whole of the treatment the wound was not bandaged. Dollar states two recoveries having been reported elsewhere.—Reginald Vickers, B.V.Sc., The Plains, Virginia.

DERMOID CYSTS.

Bay gelding, 4 years old, 15.2 hands and weighing 1600 pounds presented for treatment with four lumps on his back in the region of the junction between the back and the loin. Each lump was the size of a hazel nut and they were all in a straight line longitudinally and about one inch apart, immediately above the spine.

The swellings were soft and painless and had been observed by the owner for the last two years.

Local anaesthesia and incision following revealed them to be dermoid cysts.

Treatment comprised their dissection and the removal of an eliptical piece of skin to ensure a flat healthy surface. The wounds were then sutured and antiseptic dressings applied.—Wm. Clarkson, B.V.Sc., Riceville, Ont.

IMPALED ON A FENCE POST.

The subject was a heavy draught mare.

History.—Out on pasture with team mate when they both jumped a fence with the subject of this report in the rear. Its mate up-ended a fence post in clearing so that in following immediately behind it was impaled by landing directly on top of the post as it was balanced in mid-air, point upwards.

Injury.—Post entered the pectoral muscles, internal to the fore-arm passing backwards, outwards and upwards. The extent of the wound may be judged by the fact that the point of the post penetrated to within eleven inches below the external angle of the ileum. Diameter of the "splinter" was three and one half inches. Distance penetrated 3½ feet. It required four men to withdraw the post.

Treatment.—Antitetanic serum. Maximum dose. Anti-streptococcic serum. Excellent drainage. Repeated flushings out with normal saline after the initial creolin solution irrigation. Enema injection pump was used for this purpose.

Result.—Animal made a nice and uneventful recovery. (*) No evidence of the injury is apparent in the mare to-day.—Reginald Vickers, B.V.Sc., The Plains, Virginia.

* We regret that the photo could not be reproduced.—Ed.

PTERYGIUM IN FOX HOUND PUPPIES.

Two fox-hound puppies about 8 months old presented pterygium. Animals useless for hunting unless removed. In one case the tissue was unpigmented, but decidedly pigmented in the other. Both cases had hair growing on the surface and both extended from sclerotic coat, (base of triangle) to cornea, (apex of triangle.)

The operation was performed by giving each animal H. M. C. subcutaneously. Half an hour later when on the table local anaesthesia with cocaine and adrenaline to the cornea. Growth dissected off in the usual way. I was surprised to find that the growth intimately blended with the surrounding normal tissues, a fact that required a great deal of care in operating to successfully remove without causing undue damage. Animals both made a complete recovery. In future I shall use and recommend general anaesthesia for all eye operations to secure a complete relaxation of all muscles.—Reginald Vickers, B.V.Sc., The Plains, Virginia.

TETANUS,

On April 7th was called to see a brown mare suffering from acute tetanus.

History.—The history of the case was to the effect that 12 days previous she had caulked herself in the near fore foot, but she was too stiff and nervous to allow it to be treated.

The animal showed all the usual symptoms of acute tetanus. Head and tail elevated, longissimus-dorsi muscle contracted depressing the back, legs spread out, nosrtils dilated, profuse perspiration, painful breathing and jaw set.

Treatment.—Injected 30,000 units of antitetanic serum into the jugular vein. Lobelin sulphate in ½ grain doses, three times daily for the first thre days. On the second day I again gave 20,000 units of serum intravenously, then followed with 5,000 units every other day for four more doses. As soon as the foot could be moved the wound was treated with tincture of iodine until healed. On the eighth day the jaws relaxed and allowed her to eat a little soft food. From then on she made a gradual improvement and was put back to work in five weeks.—R. W. Devereux, V.S., Brantford, Ont.

FOREIGN BODY IN COW'S THORAX.

On June the 7th I was called to see a grade Holstein cow.

History.—Cow had been in good flow of milk, with usual appetite until about a week previous, when she commenced to gradually slow up on milk production and lose her appetite. She also became very stiff in her fore parts, and when made to move she did so with difficulty and evident pain. On examination I found temperature 103 F., pulse 58, breathing slightly accelerated. Examination found left side and lung normal, but on the right side lower third of costal surface directly behind elbow was very sore and animal evidenced pain on palpation. Part also was slightly swollen.

Diagnosis.—Doubtful, probably an injury.

Treatment.—Stimulating linament to be applied once daily over affected part and mixture of digitalis and spirits aether, nit., to be given twice daily. I called again in five days time and the general condition of the animal seemed about the same, but the swelling was now larger, hot and tense and a well defined abscess forming. I left instructions to continue same treatment and to call me up when abscess softened up. Three days later the owner called up and said it had softened up in the centre so I went out and lanced it. |On cutting into abscess my knife struck something that I thought must be a piece of broken rib. On examination it proved to be a piece of bale wire about seven inches long. I removed wire gave good drainage and left antiseptic solution to flush out the cavity once daily, the wound healed in about three weeks, the soreness gradually left her and she regained appetite and nearly usual flow of milk. The cow had been fed on baled hay all winter and evidently had swallowed this piece of wire in the feed. The wire was bent in the shape of a bow which no doubt was the reason it worked to the right side and out between the ribs instead of causing traumatic pericarditis as is usual in such cases.—R. W. Devereux, V.S., Brantford, Ont.

INGUINAL TUMOR.

Aged French poodle bitch developed a large tumor in inguinal region. The growth was moveable with a slight adhesion to the skin, there being a certain amount of inflammation brought about by irritation. The growth had first been noticed about six weeks before, and had been growing rapidly. An examination of the abdomen showed the presence of another small hard growth in an anterior mammary gland. This tumor was very firm and about the size of a hazel nut.

The animal was placed under a general anaesthetic and the growths removed. The small growth appeared to have arisen in connection with the mammary gland and was well encapsuled. The large tumor had passed down the inguinal ring being attached to the omentum, a portion of which had descended with the growth. The animal made a good recovery, and for two months appeared to be in good health when she became suddenly ill. Breathing was difficult and appetite lost. Temperature normal. When fore quarters were elevated breathing was easier. Became gradually worse and temperature rose to 104°, breathing becoming so bad that at times there seemed danger of asphyxia. As there seemed to be no hope of recovery the animal was destroyed.

P.M.—The uterus contained a large tumor which had ruptured the uterine wall and protruded into the abdominal cavity. The thoracic cavity was literally filled with a mass of small tumors, the left lung being destroyed. There were many small growths upon the pleura.

Laboratory Findings.—The growths removed at operation were examined, and the large inguinal tumor was found to be a sarcoma in a rapid state of growth, while the small mammary tumor was a fibroma. The large tumor removed from the uterus at post-mortem was a sarcoma which had the appearance of being of long standing, but had suddenly become very active. The small growths in the lung and thoracic cavity were also sarcomata.

Conclusions.—The uterine tumor was probably the primary growth, which becoming very active had spread by metastasis via the lymphatics and the blood stream to the lungs and thoracic cavity.

E. D. WRIGHT, B.V.Sc., Kempville, Ont.

Laboratory findings by H. E. BATT, B.V.Sc., Ontario Veterinary College, Toronto.

DOOMED ARMY HORSES.

Sir L. Worthington-Evans, Secretary of War for England, stated recently, according to the Veterinary Record, that more than 6,200 army horses and mules had already been destroyed in Mesopotamia. He is considering an offer by a shipowner to transport to a European port large numbers of horses from Beirut at £25 per head. Apparently there is much anger about the impending slaughter of 30,000 cavalry horses in Mesopotamia, because it will not pay to bring them home. Soon, said a cavalryman, there will be another outbreak and when Winston's aeroplanes and armoured cars have failed we shall hear a yell for cavalry and the world will be scoured for more horses.

PERSONALS

Dr. F. H. S. Lowrey has been taking a complete rest at his summer home on the Rideau River.

Dr. E. A. Watson, Chief Animal Pathologist at Ottawa, is at present in Europe on important departmental business.

Drs. Naismith, Phillips and Cowie have accepted appointments as Veterinary Inspectors, Health of Animals Branch.

On Wednesday July 13th 1921 the marriage took place at Toronto of Miss Myrtle Allen of 45 Alton Avenue to Dr. H. C. Stevens (O. V. C. '19) of Mount Albert, Ontario. Our heartiest congratulations to Dr. Stevens.

Dr. Jas. A. Waugh of Pittsburg favoured us with a long interesting letter and several news items. We hope that more of our friends will follow his example and pass along any news of interest to the Veterinary world.

We are agreeably surprised to hear that Dr. H. B. Collet is now a proud and happy father. In a recent letter we are informed that Mrs. Collet gave birth to a son, Wilfred Peter Guy on July 5th at Hampstead in England.

The city of New Westminister, B. C., recently passed a By-Law governing the inspection of meat and fish consumed by the city. The new law will be administered by Dr. J. B. Williams D. V. S., who has been appointed City Food Inspector.

Dr. and Mrs. W. J. R. Fowler with Miss Freda Fowler recently returned to Toronto from their summer vacation at Bayfield, Ontario. In the future Dr. Fowler intends devoting more time to special surgery than he has been able to do in the past.

It is with great satisfaction that we publish the announcement that Dr. and Mrs. Frank Wood, of Toronto, Ont., are the recipients of a daughter, Mary Gertrude. The historic date of July the 12th will be of double significence to Dr. Wood in future.

Dr. E. D. Wright, B. V. Sc., who has been associated with Dr. Hodgson, in his practice in Toronto is arranging to locate at Kempville, Ont., where he will conduct practice and act as Lecturer in Veterinary Science at the Kempville Agricultural School.

Owing to pressure of work, Dr. J. A. Allen finds it impossible to contribute the third instalment of the Silver Black Fox Industry in Prince Edward Island. It is hoped that Dr. Allen will be able to let us have an article for the December number continuing this very interesting subject.

The many friends of Dr. W. A. Thompson, formerly of Bradford, and now residing in Washago, will be glad to hear that he is now on the road to recovery. Dr. Thompson has been seriously ill since January, and his presence at executive meetings and the winter meeting of the Association was missed by all who knew him.

Dr. Alfred S. Burdick has been elected to fill the vacancy as President of The Abbott Laboratories, caused by the death of Dr. W. C. Abbott.

He is a graduate of the Alfred University, Alfred, N. Y. and Rush Medical College, Chicago. He has been closely associated with the Abbott Laboratories for over seventeen years, and for the past six years has been Vice-President and Assistant General Manager.

Alfred Savage, B. S. A., D. V. M., instructor in Veterinary Science and Assistant Bacteriologist at Macdonald College, St. Anne de Bellvue, Quebec, has been appointed to the Staff of the Manitoba Agricultural College at Winnipeg as Professor of Animal Pathology.

Dr. Savage graduated from the Macdonald College in 1911 as Bachelor of Science in Agriculture, and in Veterinary Science at Cornell University in 1914.

Dr. L. M. Heath who headed the list of graduates from the Ontario Veterinary College this summer, and obtained highest marks for general proficiency, is at present at the Biological Laboratory, Health of Animals Branch, Dept. of Agriculture, Ottawa. Dr. Heath has the added distinction of being the first veterinarian attempting the publication of a veterinary journal in Canada, when he published the Canadian Veterinary Record in the spring of 1920.

Inspectors H. H. Gibson and E. B. Thomas have been transferred from the Meat Inspection Division to the Field Division in Toronto.

Inspector C. E. Derome has been transferred from the Field Division in Montreal to Meat Inspection Division in Toronto.

Inspector H. Aubrey of the Toronto Meat Inspection Division has transferred to Montreal.

The following Inspectors of the Meat Inspection Division are relieving as follows:—Dr. S. A. Hill at Peterboro, Dr. F. D. Matthews at Stratford and Dr. C. S. Dickenson at Brantford.

The following inspectors of the Health of Animals Branch, have been transferred to the Contagious Diseases Division:—A. G. Murray to Ottawa, Ont., J. T. Melanson, Cornwall, Ont., J. Steen, to Halifax, N. S., H. R. Estes, Brandon, Man., Dr. J. H. George has been transferred from the Contagious Diseases Division to the Meat Inspection Division at Toronto, and Dr. R. Clegg at Prince Albert, Sask.

Dr. C. J. Johnnes Veterinary Inspector has been temporarily transferred to the Contagious Diseases Division with Headquarters at Regina, Sask.

Inspector I. Christian has taken over charge of Establishment 23-A at Edmonton.

The City of Brantford, Ontario, are to be congratulated in securing the services of Lieut. Colonel A. B. Cutcliffe, D.S.O., as Inspector of Foods in the Municipal Health Department. His special duties include Hygienic Control of all foods sold on the public market and throughout the city, also inspection and control of all milk supplied for sale and consumption in Brantford. This means supervision of local plants and producers premises and the issuing of licenses for same.

Colonel Cutcliffe has enjoyed considerable executive experience Overseas. During the war he was Assistant Director of Veterinary Services to the Canadian Corps holding that position until demobilization. He has the distinction of being known as a man of sound judgement and strict integrity, and his appointment is a very popular one with the profession.

The Officers of the Health of Animals Branch, Department of Agriculture at Toronto, held their annual picnic at High Park on July 9th. The weather was excellent and a large crowd attended. The outstanding sporting events were, The Fat Man's Race in which Inspector M. L. Carey toddled in an easy first. Base Ball, Veterinary Inspectors versus Lay Inspectors, won by the Lay Inspectors, and Tug-of-war won by the Veterinary Inspectors. Later in the afternoon the ladies put on a Base Ball Match. This game was umpired by Dr. Robert Barnes of Ottawa. Dr. Barnes decisions were wise and discreet, although from the casual remarks of a few ladies things looked exceedingly serious at times. Officers for the picnic were: C. W. McIntosh, Chairman; G. C. Cockerton, Sec-Tres., T. S. Evans and G. N. Jull, Sports committee, F. S. Wingate and C. Gowan, Refreshment Committee, T. Kerr and Wm. Howard in charge of grounds, Auditors, Wm. Tennant and D. Edwards. Reception and entertainment Committee, Miss Keir, G. H. McKay, D. R. Bone, W. C. Bennett and A. McDonald.

Dr. J. H. Tennent Retires.

In conformity with the ruling of the Civil Service Commission many of the older members of the Veterinary Profession who have been associated with the Federal Department of Agriculture have been retired owing to their having reached the age limit, and among these is Dr. J. H. Tennent of London, Ontario. Dr. Tennent graduated with honours from the Ontario Veterinary College in the year 1874, and engaged in private practice in London for a number of years as partner with the late Dr. J. H. Wilson. Later he had associated with him Dr. R. Barnes, at present Chief of the Meat Inspection Division at Ottawa. In the year 1901 Dr. Tennent accepted a position as a Federal Veterinary Inspector of the Health of Animals Branch.

His retirement removes from active service a man of sterling qualities, who retains the undivided respect and esteem of not only his superior officers, but also the members of the profession and the public at large.

A Pioneer Retires.

One of Canada's pioneers in the realm of veterinary medicine has just retired from active work. Dr. William Stubbs of Caledon, Ont., possesses the unique distinction of being one of the first men to graduate in veterinary science at the old Ontario Veterinary College after its inauguration by the late Professor Andrew Smith in 1869. In the graduation class of that year there were but two, one of these being Dr. Stubbs.

Immediately after obtaining his degree, Dr. Stubbs returned to Caledon where he conducted a large practice for many years. In the early 90's Dr. Stubbs was induced to enter politics and he successfully contested a seat in the Federal House and represented the County of Cardwell for a number of sessions.

In 1897 he was appointed Dominion Inspector in the Health of Animals Branch, Department of Agriculture under Dr. J. G. Rutherford, C. M. G., the Veterinary Director General at that time.

After an active life in the profession covering a period of over 53 years, Dr. Stubbs retires to spend the remainder of his life in the sanctuary of his old home. Those of us who have worked with him during the busy years that are past can realise what a valuable asset his servicse were to the Branch of Agriculture he represented. By strength of a personal charm of character and tireless enthusiasm Dr. Stubbs accomplished a great deal toward establishing the present cordial relations existing between the live stock men and the Inspection service. He made friends wherever he went, and, wherever his official duties directed him, he was always welcome. The Record joins in extending congratulations to Dr. Stubbs trusting that rest and recreation will add many years to his life.

VETERINARY OFFICERS OF HEALTH.

Since our editorial, dealing with the importance of commencing a National Veterinary Association in Canada, we have received a newspaper cutting from Dr. Kenneth Chester, Secretary Treasurer and Registrar of the British Columbia Veterinary Asscoiation. This clipping is from an American Daily Paper and the article deals with the presentation of a resolution to three Legislativve Assemblies concerning the appointment of Veterinary Health Officers. The article states "Medics are not qualified to decide the fitness or unfitness of animal products. Their study is of those who eat, not of that which is eaten, so why should they be given authority over that which is eaten? So the veterinarians question. . . .?

It is interesting to know that the actual resolution was presented to the meeting by a Canadian veterinarian named Dr. Kenneth Chester, who is Associate Editor of the Record. The resolution reads as follows:—

"WHEREAS on account of the importance attending the consumption of milk, meat and fish and other food products and
"WHEREAS the consumption of this food if diseased or contaminated is often the cause of ailments and disease of human beings and

"WHEREAS members of the medical profession by their lack of study and training in the pathology, physiology and anatomy of the domesticated animals, are not considered competent to inspect, control or pass judgment on foods with a view of protecting the public from such ailments and derangements as would be caused by consuming diseased and contaminated foods,

"BE IT THEREFORE RESOLVED that this Meeting of Veterinarians representative of the States of Washington, Oregon, Idaho and the Province of British Columbia, Canada, do urgently suggest that all cities, towns and municipalities appoint Veterinary Health Officers, and

"BE IT FURTHER RESOLVED that all Veterinary Colleges include in their curriculum a post-graduate course which will qualify veterinary graduates for Veterinary Health Work."

Reid:—I hear Mrs. Michael O'Flanagan has given birth to twins for the third time!
Sharman:—For the love of Mike!

ASSOCIATION NEWS

ONTARIO VETERINARY ASSOCIATION.

The 42nd. Annual Meeting of the Ontario Veterinary Association was held at the Ontario Veterinary College on August 11th and 12th. The meeting convened at 10 a.m. on the 11th. Dr. J. A. Campbell, the president, occupying the chair.

In his introductory remarks the president emphasized the necessity of a Dominion Veterinary Association and strongly advised the members to stand behind this movement. He outlined the work accomplished by the Executive during the past year, thanking the committee for its support. He also suggested having a winter meeting in January or February.

The minutes of the last Annual Meeting were read, and it was moved by Dr. J. Short, seconded by Capt. J. Dunn, and carried that the minutes be adopted.

The work of the secretary-treasurer during the past year was discussed by Drs. Campbell, McGilvray, Morgan and Dunn, who stated that it had been fully appreciated. A motion was made by Capt Dunn, seconded by Dr. Morgan that the sum of $100 be paid him for his services, but the secretary suggested that the matter be left to the Executive after meeting all the expenses of the present meeting.

Communications from the following, regretting their inability to attend, were then read: Drs. Geo. Hilton, W. A. Thompson, W. F. Clarke, A. Savage. C. Elliott, J. H. Engel, F. G. Hutton, D. A. Irvine, Col. J. H. Wilson, Col. R. L. Mundhenk, and Col. T. C. Evans.

Dr. C. D. McGilvray presented the report of the Rutherford Trust Fund, stating that no payments had been made from this fund during the past year.

The next order of business was the election of officers, and Drs. J. G. Rutherford and W. Cowen were appointed scrutineers.

The officers elected for 1921-22 are: President, Dr. J. A. Campbell, Toronto; 1st Vice-president:—Dr. D. R. Caley, Bracebridge; 2nd Vice-president:—Dr. T. B. Buckley, Toronto; Executive Committee:—Dr. H. E. Batt, Toronto; Capt. J. Dunn, Barrie; Dr. D. A. Irvine, Toronto; Dr. W. A. Thompson, Washago. Ex-officio member of executive:—Dr. C. D. McGilvray, Toronto. Secretary-treasurer and registrar:—Dr. J. S. Glover, Toronto. Educational committee:—Dr. W. F. Clarke, Goderich; Dr. W. J. R. Fowler, Toronto; Dr. J. McFadzean, Arthur; Col W. J. Morgan, Kingston; Dr. J. Porter, Brantford; Dr. J. Short, Erin; Dr. W. J. Wilson, London. Legislative committee:—Dr. O. H. Duncolmbe, Waterford; Dr. J. P. Fitzgerald, Hillsdale; Dr. C. L. Morgan, Shelburne. Representative to Canadian National Exhibition:—Dr. C. S. Macdonald, Toronto. Representative to Ottawa Fair:— Dr. D. B. Kennedy, Ottawa: Col. W. J. Morgan,Kingston. Representative to London Fair:—Col. J. H. Wilson, London; Dr. C. S. Tamlin, London. Dr. C. F. Ottewell was appointed auditor in place of Dr. C. Elliott, who requested that someone should replace him permanently, and Dr. W. W. Forsythe was appointed temporary auditor in place of Dr. F. G. Hutton who was unable to be present.

The chief feature of the afternoon's session was a paper on the Standardization of Veterinary Fees by Capt J. Dunn. In this excellent paper

Capt. Dunn compared the fees set by the Saskatchewan, Manitoba, and the Northern Ontario Association's, showing the great disparity between the fees obtaining in the Western provinces and those in rural parts of Ontario. Hearty discussion followed the reading of this paper in which Drs. Caley, Campbell, Culp, Fowler, Buckley, Porter, Rutherford, and Turley took part. A committee was then formed to draw up a schedule of fees to be presented at the evening session for adoption by the members of the Association. Capt. Dunn's paper will be published in a future number of the C. V. R.

Dr. A. B. Wickware of the Biological Laboratories, Ottawa, gave an illustrated address on the Diseases of Poultry. He emphasized the economic importance of poultry to Canada, and urged veterinarians to pay more attention to this phase of live stock breeding. He stated that the fowls in Canada were worth $200,000,000, and it was therefore essential to conserve this great industry by safeguarding the flocks from the ravage of disease. The diseases of chicks were dealt with and advice given as to how the excessive mortality rate could be appreciably reduced. Tuberculosis, Blackhead, etc., were also briefly mentioned and sanitary precautions outlined for their eradication and control.

At the end of the afternoon session an excellent lunch was served in the assembly hall, and great credit is due Drs. Ottewell and Gwatkin for preparing the feast. Letters of thanks were sent to Gunns Ltd., Harris Abattoir and Canadian Packers for their kindness in providing hams for the lunch.

The first address at the evening session was by Dr. C. D. McGilvray, on the Andrew Smith Memorial Fund. He briefly outlined the origin of the Fund and stated that the following contributions had been made during the year:

Members in Ontario	$73.70
Members in Manitoba	19.00
Members in British Columbia	30.00
Members in New Brunswick	10.00
Bank Interest	1.85

He appealed to the members for further subscriptions, and Dr. C. H. Higgins of New York also made a strong appeal, with the result that $143.85 was collected for the fund at the meeting and $90 more was pledged.

Dr. F. Torrance, Veterinary Director General, next addressed the meeting on Tuberculosis and the Accredited Herd Plan. He outlined the fight in progress against Tuberculosis which is being made by his department, and drew attention to the number of municipalities availing themselves of government inspection of cows. These are, Ottawa,Virden, Manitou, Regina, Saskatoon, North Battleford, Calgary, Banff, and Portage la Prairie. The number of cows tested in these municipalities during the first four and a quarter months of the fiscal year is 8,242 against 5,189 for the whole of the preceding year; 502 reactors against 248; 501 slaughtered against 238; and $34,094 paid in compensation against $14,641 in the preceding year.

The popularity of the Accredited Herd Plan amongst breeders was such that many herds have had to be placed in the waiting list. The number of fully accredited herds is now 22; under process of accreditation 541, awaiting testing 90, making a total of 653 herds.

The comparative freedom in Canada from Glanders and Hog Cholera was also pointed out by Dr. Torrance who emphasized the great importance of the control of garbage in connection with the control of Hog Cholera.

Dr. Robert Barnes, Chief Inspector, Meat and banned Foods Act, gave an interesting address on the Inspection of banned Foods, which brought forth much discussion. Dr. Barnes paper will be published in the next number of the C. V. R.

Dr. C. H. Higgins, of the Lederle Antitoxin Laboratories, New York, who is one of the most popular members of the Association, addressed the meeting on "Service." He pointed out the value of good service and made many timely remarks that were well received.

Both Drs. McGilvray and Higgins spoke on the Canadian Veterinary Record and pointed out that only by the united efforts of the veterarinians of Canada was it possible to continue the publication of this journal. Although many have not yet paid their subscriptions each veterinarian whose name and address has been obtained is on the mailing list, and it is hoped that all members of this Association will become paid-up subscribers.

At this meeting twenty-five more subscriptions to the journal were made.

The meeting on the second day commenced with demonstrations of the application of the Tuberculin Tests by Dr. McGilvray. The method of applying each test was fully shown and discussed, and reactions were demonstrated on cattle that had been injected prior to the meeting.

Dr. J. F. DeVine, of the New York State Veterinary College next gave an interesting and instructive talk on Diseases of Breeding Cattle. He stated that the methods employed on this continent in dealing with Sterility were far ahead of those in any other country. The corpus luteum was fully described, and its significance explained. Diagnosis of pregnancy in cows was thoroughly outlined from a few weeks up to parturition. Uteri of cows, both virgin and in various stages of pregnancy, were supplied by Drs. D. A. Irvine and C. W. McIntosh, enabling Dr. DeVine to fully illustrate his methods. Dr. DeVine also demonstrated the treatment of sterility in several cattle sent in for that purpose.

Equine surgery was performed by Dr. W. J. R. Fowler of Toronto, and Dr. D. R. Caley of Bracebridge.

Drs. R. A. McIntosh of Oakville and H. E. Batt of Toronto acted as assistants during the clinics.

The auditors reported that the books of the Association were correct and that there was a credit balance of $95.93.

J. S. GLOVER, Secretary.

NORTHWESTERN VETERINARIANS OF WASHINGTON, OREGON, IDAHO & THE BRITISH COLUMBIA VETERINARY ASSOCIATIONS.

A very successful joint meeting of the Washington, Oregon, Idaho and British Columbia, Veterinary Associations was held in Seattle, Wash., on July 14th and 15th.

This was a most interesting meeting of the Veterinarians of the Northwest, there being 70 veterinarians present.

The meeting was called to order at 9.30 a. m. and a few opening remarks were made by Dr. R. A. Button, President of the Washington Association was called upon Corporation Counsel Meyers of the City of Seattle to give us an address of welcome,which he did in a few chosen words, this was replied to by Dr. Cook of Brownsville, Ore.

Dr. Button then introduced Dr. W. Coon of Forest Grove, Ore., President of the Oregon State Association, whom he asked to preside at the meeting, Dr. Coon accepted the honour with a few words and then called upon Dr. W. Brookes of Duncans B. C. who spoke on the subject of "Veterinary Hygiene and Sanitation in relation to Dairy Cattle and their products" Discussion was opened by Dr. L. Pelton of Olympia, Wash., and followed by Dr. R. Lytle of Oregon and also Drs. Button and Howell.

The next paper was one by Dr. J. H. Woodside of Redmond Wash., on the "Methods of removing retained placenta in cows". Discussion was opened by Dr. A. Damman of Vancouver B. C. and followed by Drs. Cook, Howell, Donohue, Keown, Jagger, Ackley, Selander, Button and Simms.

Then followed an address by Mr. J. L. Peterson of the U.S. Forest Service on "Poisonous plants on the Range" illustrated by lantern slides, and voluminous figures were given showing the area of the Forest Ranges, the number of stock on them etc., and concluded by natural size pressed specimens of the poisonous plants. Discussion was by Drs. Fuller and Reagan.

In the afternoon the session was opened by a paper entitled "A few case reports on sterility in cattle," by Dr. P. Mackintosh of Yakima, Wash. Discussion was opened by Dr. Jagger, President of the B. C. Veterinary Association and continued by Drs. A. Saperstein, C. Philips, R. Donohue, F. Hendrickson, B. Simms and J. Cook.

Dr. J. R. Fuller of Walla Walla, Wash., then read a paper on an uncommon condition entitled "Harvest Pneumonia in Horses". The discussion was led by Dr. E. E. Wegner of Pulman, Wash.

Dr. T. E. Sleeth of Vancouver B. C. then showed lantern slides prepared by himself showing breeds of dogs and pointed out the different points and lines indicative of the presence of quality and type in dogs for show purposes, his object being to assist Veterinarians who often have dogs brought to their office and are asked if such a dog is worth exhibiting or could he be fitted up for show purposes. General discussion followed.

The next was a talk by Dr. A. Saperstein of Ferndale, Wash on "Operations to remove teat strictures' Discussion was by Drs. C. Philips, Howell, Cook, Jagger and Carter.

Having been going steady from 9.30 a. m. to 6.30 p. m. with an hour and a half for lunch we adjourned until 9 a. m. the next morning.

The first paper was one by Dr. C. S. Philips of Mt. Vernon, Wash., on the subject of "Mastitis". Discussion was opened by Dr. C. Cozier of Bellingham, Wash., and continued by Drs. J. Hendrickson, G. Howell, Jones, Carter, Roberts, Chester, Coon, Miller, and Keown.

The next was a paper of growing importance to the Veterinarian, "Diseases of Poultry" by Dr. W. T. Johnson of Puyallup Wash., illustrated by beautiful lantern slides. Discussion was by Drs. Howell and Ackley.

In the afternoon Dr. L. Pelton of Olympia Wash. gave an address on "Hog Cholera and Allied diseases". Discussion was opened by Dr. J. Frank and continued by Drs. Howell, Jagger, Hess and Chester, and also Mr. Ringer of the Pacific Hog Ranch, by invitation gave some interesting remarks on his experience with Hog Cholera and different hog diseases, and the use of serum and virus.

On invitation of the Chairman various Associations adjourned for one hour to discuss their respective association affairs and after convening again Dr. E. Derflinger of Eugene, Oregan, then read a paper of great interest to Inspectors on "Types of Tuberculin Reactions and location of lesions found on Autopsy".

Discussion was by Drs. M. Sparrow, Lytle, Donohue, Ackley.

Adjournment was taken at 6 p. m. and on meeting again at 8 p. m. the first paper was one by Dr. R. Button of Tacoma, Wash., on "Some peculiar cases met in general practice," and discussion was by Drs. Philips, Fuller, Cook, Howell, Howard, Keown, Fullington, and Strong.

Dr. G. A. Jones of Sedro-Woolley then read a paper on "Panaritium" in cattle on which there was a general discussion.

This was followed by a paper by Dr. B. Simms of Corvallis Ore., on "Some Experiments with Contagious Abortion in Cattle". This very interesting paper was fully discussed by Drs. Miller, Hendrickson, Donohue, Coon, Howell, Derflinger, Woodside and Fuller.

Dr. Cozier of Bellingham, Wash., then read an amusing paper entitled "Some Useful Therapeutic Preparations" written by Dr. E. T. Baker, of Moscow, Idaho.

The final paper was one by Dr. E. E. Wegner of Pullman, Wash., on "Some phases of Veterinary Surgery" and was discussed by Drs. Damman, Cook, Moorehouse, Button and Fuller.

The meeting adjourned at 10.15 p. m.

At the end of the morning session Dr. T. H. Jagger, President of the British Columbia Veterinary Association with a few well chosen remarks invited the Northwestern Veterinarians to meet next year in Vancouver B. C., at a date to be arranged by the different Secretaries. Dr. L. Pelton moved that this invitation be accepted this was seconded by Dr. Cook and on the question being put was unanimously carried.

Dr. K. Chester, Sec-Tres, of the B. C. Association introduced a resolution advocating the necessity for the appointment of Veterinary Health Officers. (The resolution is given in detail in another page of this issue of the Record.) Considerable discussion followed this resolution being led by Drs. Philips, Brookes, Wegner, and Strong and many suggestions were offered. The resolution was carried unanimously.

The Annual General Meeting of the British Columbia Veterinary Association will be held at the Hotel Dunsmuir during the week of the Vancouver Exhibition, on Wednesday August 17th, commencing at 9 a. m. sharp.

Prizes will be given by the Association for the best mechanical device, (not necessarily patented) of benefit to the profession and devised entirely by a member of the Association.

In the evening a banquet will be held to which the ladies are invited, but members will pay for their lady guests at $2.00 per plate, and we expect to have several prominent men, friends of the profession, present too.

KENNETH CHESTER, Sec.-Treas. B. C. Veterinary Association.

Sir Stewart Stockman, Director of Veterinary Research, for the Board of Agriculture in England is reported to have stated before a meeting of the Royal Commission on the Importation of Store Cattle, that if cattle were to be admitted he would require many more qualified veterinary officers, and large isolation camps would have to be established. As far as Canada is concerned Sir Stewart's attention is directed toward the last two year's report of the Canadian Veterinary Director General, in which it is shown that the disease he is seemingly so anxious about, has ceased to exist in Canada for some years. The question might well be asked. Did Sir Stewart Stockman at that meeting represent the Veterinary Research Department of the Board of Agriculture and Fisheries, or the English Breeders?

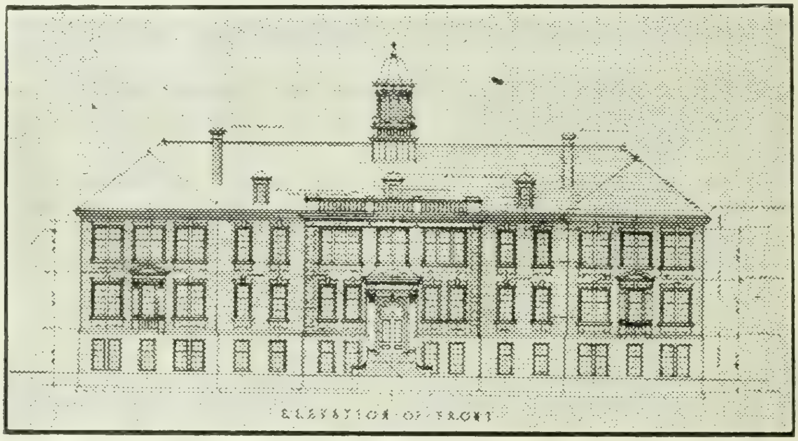
The Pennsylvania State Veterinary Medical Association have arranged for a Scholarship in the Veterinary School of the University of Pennsylvania. Other Associations take notice!

COLLEGE NOTES

Contracts let for New Veterinary College at Guelph

The contract for the building of the new Veterinary College at Guelph has been let to Schultz Bros. of Brantford, Ont. According to the plans the building is to be a large structure of an imposing appearance. It is expected that the new Veterinary College will be ready for occupancy the Fall Session of 1922. The present building in Toronto on University Avenue, will be used for Government offices after the students have moved to their new home in Guelph.

There is no doubt that the move is a good one. Guelph is the logical place for the Ontario Veterinary College. It is necessary for the students to have stock available at all times and this is not possible in Toronto. Besides this, it is very desirable that graduate veterinarians should have a greater knowledge of animal husbandry than it is possible to give them with the facilities available in Toronto. It is expected that the Veterinary College and the Agricultural College will co-operate for their mutual benefit.



Elevation of Front of New College.

The College is fortunate in again obtaining the services of Dr. F. W. Schofield as a member of the faculty. Dr. Schofield graduated from the Ontario Veterinary College in 1910, receiving the degree of D. V. Sc. in 1911. He was attached to the Department of Bacteriology of the College from 1911 until 1916, during which time he conducted research work relating to joint ill of foals and contagious abortion in mares. Dr. Schofield was also associated with the Department of Hygiene and with the Biological Laboratory of the Board of Health of the Province of Ontario. From 1916 until 1920 he was attached to the Staff of the Medical College, Seoul, Korea.

Messrs. T. B. Lindsay, R. G. Cuthbert and H. M. LeGard visited the College, and incidentally the editorial sanctum. All three were in good spirits and looked forward to the beginning of the fall term. This can only be explained by their having forgotten the trials of spring exams or the fact that the summer's work is proving so arduous that anything looks good for a change.

TO A GUINEA PIG

Gentle little guinea pig
  Whistling in your sty,
There's little you know how to do
  Except to multiply,
And yet when epidemics come
  To scare us half to death,
In mankind's cause you fold your paws
  And yield your fluttering breath.

They fill you full of wriggling germs
  That spread abroad the 'flu,
And watch all day to note the way
  They make an end of you;
And if in vain your little lungs
  The bacilli assail,
They peel your hide and search inside
  To find what made 'em fail.

They feed you arsenate of lead
  To see how you will feel,
And stand around to hear the sound
  Of your departing squeal;
And if by chance they still can hear,
  The beating of your heart,
To find out why you didn't die,
  They take you all apart.

Gentle little guinea pig
  You have but little sense;
You would not rate as very great
  In brute intelligence.
But what with ptomaines, temperance drinks,
  Wood alcohol and 'flu
We rather fear we'd not be here
  If it were not for you!

J. J. MONTAGUE.

CORRESPONDENCE

Editor, Canadian Veterinary Record.

Dear Sir:—

Do you not think it time that some practical steps were taken to get representatives from each Provincial Association together, say in Winnipeg or Ottawa, with a view to the formation of a Dominion Examining Board, so that any graduate having passed that Board could practise in any part of Canada, the same as is done now in the Medical Profession.

I am sure that the Hon. Dr. S. F. Tolmie and Dr. C. D. McGilvray would give advice and assistance in the matter.

The formation of such a Board would, of course, remove the necessity for the various Provincial Examining Boards, and as Chairman of one of these for some time I think that would have one disadvantage and that is that I have frequently been told by more or less old graduates wishing to practise in this Province, when informed that they must take an examination, they objected because they said they had been out of college so long, in fact just lately one man said rather boastfully that he had not looked at a book since he left college some twenty years ago, and the answer I always give to these men is that I consider it their duty to their profession and to their clients, the live stock owners, to keep themselves informed of the latest methods of diagnosis and treatments of the various ailments of live stock, and the Provincial Legislature instructed the Provincial Examining Board to protect the live stock owners of the Province by seeing that any Veterinary Surgeon wishing to treat their animals was qualified at the present time, in comparison with modern proved methods, to do so. Now, if a man passes a Dominion Examination and ten years afterwards moves to another Province, and is one of those kind who never looks at book or journal, the present check on those kind of men would be lost. However, I am quite in favour of a Dominion Examining Board and the elimination of the Provincial ones, and I think this tendency of a few to think that there is nothing more to be learned out of books or journals after the day they leave college, will die out.—Kenneth Chester.

Editor, Canadian Veterinary Record.

Sir,—

There is one thing which I think should be accomplished while we have the Hon. S. F. Tolmie at Ottawa. That is to form a Dominion Veterinary Association in Canada along similiar lines as adopted by the Medical Profession.

This would be a very important step toward improving the status of the profession and would tend to give it more weight and incidentally respect on matters in connection with veterinary science.

Each Provincial Veterinary Association would have representation on the Council, while the different Provincial Associations would be Divisions of the Council upon its inauguration.—"Biscum", Sask.

Editor, Canadian Veterinary Record.

Sir,—

I think that the Editorial Staff of the Canadian Veterinary Record are to be congratulated for the excellent paper that has made its appearance under the auspices of the Canadian veterinary profession.

It is to be hoped that every live Veterinary Surgeon supports this little paper and hands in his $2.00 without having to be asked. Let me give you a little advice regarding delinquent subscribers. There is only one way . Keep going after 'em, soft and gentle at first, kindly and persuasive next, then firm but nice. Appeal to professional pride, to the value of keeping well informed and up-to-date, to everybodys desire to support a Canadian professional magazine, to self interest and love of their calling.

Show them that you have the goods, and they cannot afford to be without them. Those you dont get that way worry them until they send their subscription for the sake of peace and quietness. Then, after all, if any are left anything more you can say will go into three words — — —. —F. D.

Editor, Canadian Veterinary Record.

Dear Sir:—

I should like to refer to the joint meeting of the British Columbia Veterinary Association held in Seattle during July, at which an interesting paper was read on hog cholera and allied diseases, by Dr. L. Pelton, State Veterinarian for Washington and the discussion which followed it by a Mr. Ringer of the Pacific Hog Ranch.

The Canadian Veterinary Inspectors were amazed at the remarks of these two gentlemen and by Dr. Hess, late Inspector of the Bureau of Animal Industry. Firstly, that feeding of garbage had no relation to either presence or absence of hog cholera. Secondly, that it was not necessary to cook garbage. In fact it was better not cooked, as it gave the hog the advantage of being able to discriminate between good and bad food, particularly orange and lemon skins. Thirdly, that hogs injected simultaneously with serum and virus, could not, when placed in contact with susceptable hogs transmit hog-cholera. It was also stated by another veterinarian that sanitary conditions have no relation to presence or absence of hog- cholera.

I stated in my remarks that it was regretted that the Canadian Veterinary Director General was not present to give facts and figures dealing with garbage fed hogs as the gentlemen speakers had, in many instances, made statements diametrically opposite to the teachings of the Health of Animals Branch, Department of Agriculture. I believe that we should have had a very lively discussion.

Opinion seemed to show that Canadian laws relative to health of live stock, were pretty good and well enforced.

Special reference was made to the fact that the present Minister of Agriculture in Canada was was a veterinary surgeon.—Kenneth Chester.

OBITUARY

Edward Alexander Andrew Grange, V.S., M.Sc., formerly Principal of the Ontario Veterinary College, passed away July 25th at his home, 34 Chicora Avenue, after a long illness. Dr. Grange, who was in his 74th year, was compelled to give up active connection with the College about two years ago, retiring with the title of Principal Emeritus and being succeeded by Dr. McGilvray, the present Principal. Although his health had been so long impaired, it was not believed that he was in immediate danger, and his son, Rochford, of Ottawa, left for that city on Sunday night after a week-end visit.

Dr. Grange, who was of Irish descent, was born in London, Eng. He was the son of the late Lieutenant-Colonel George Grange, at one time president of the Guelph and Galt Railway and who, from 1840 to 1876, was sheriff of Wellington County. After receiving his education by private tuition and in private schools, he graduated from the Ontario Veterinary College in 1873. He was a lecturer in the College from 1875 to 1882, and from 1883 to 1897 he was professor of Veterinary Science at Michigan Agricultural College, becoming Principal of Detroit Veterinary College in the latter year. From 1899 to 1908 he conducted veterinary research work in New York State and was then appointed Principal of the Ontario Veterinary College in succession to the late Dr. Andrew Smith. In 1908 he obtained the degree of M.Sc. Dr. Grange, in addition to being an effective and popular lecturer, frequently contributed articles to veterinary science journals. He was a member of numerous veterinary and other scientific societies, and held honorary membership in the Alpha Psi Society of Cornell University and the New York Alumni Association of the same College. In religion he was an Anglican.

Dr. Grange is survived by his wife, formerly Miss Bessie Webster, daughter of the late Col. James Webster, of Guelph, Registrar of Wellington County; one son, Rochford, of the Government Air Service at Ottawa, who saw overseas service as a Flight Commander; and one daughter, Miss Maynard, at home.

The funeral service was held on Wednesday, July 27th, at St. George's Church, Guelph, Ontario.

J. R. Thompson, V.S., a native of Warwick, Lambton county, well known in Toronto and other points in the Province, died June 17th at his home, 17 Cross street, Weston, in his forty-ninth year, after an illness of two weeks.

At the time of his death Dr. Thompson was one of the Government inspectors at Swift's Abattoir, and had been engaged in similar work at other packing-houses in Toronto, Collingwood and Chatham during the past 15 years.

His father, Andrew Thompson, is still living on the farm at Warwick, where Dr. Thompson was born. While still a young man Dr. Thompson journeyed out West and took up land at Flett Springs, Sask., with his wife, who was Miss George of Adelaide, a sister of Dr. Nelson George of London. His second wife, who survives him, was Miss Barnes, daughter of Mr. S.

D. Barnes of Warwick, and sister of Mr. D. H. Barnes of the Jarvis Street Collegiate teaching staff.

In 1902 Dr. Thompson came back to Ontario and studied for his V.S. diploma. After practising at Strathroy for a short time he was appointed a Government inspector in a packing-house at Collingwood.

Dr. Thompson was a member of Weston Methodist Church. He was also a member of Wellington Lodge, A. F. and A. M., Chatham; Strathroy Lodge, I.O.O.F., and a member of the Order of Chosen Friends.

Dr. Thomas Scrivener, V.S., Reeve of Aurora, Ont., passed away on May 18th in the private patient's pavilion, Toronto General Hospital. Just a week previously Dr. Scrivener was kicked by a horse he was attending on the farm of John Morning. He was rushed to Toronto for an operation. The report of his death came as a shock to the whole town.

About 40 years ago Dr. Scrivener was born in Vaughan township, where his father, Thomas Scrivener, farmed. After graduating from the Ontario Veterinary College he practised for a time in Waterloo county, but about 12 years ago moved to Aurora.

There was scarcely an organization here that the Doctor was not actively connected with. In sport circles he was a leader. Two years ago he was elected Reeve, and previous to that had sat for some three years on the Council. He was President of the Hockey Club, Vice-President of the Lacrosse Club, and an official of both the Metropolitan Hockey League and the York-Simcoe Baseball League.

Dr. Scrivener is survived by his wife and a young son, his parents and two sisters in Aurora, and one brother, William, a farmer in Vaughan township.

Dr. James W. Orr passed away at the General Hospital, Stratford, Ont. at noon on May 31st following a long illness. While his death came suddenly at the end, it was not unexpected as his condition was known to be critical. About six weeks previously he was taken to the Hospital, where he remained until the end.

Dr. Orr came to Stratford from Cobourg, near where he was born, about 22 years ago and had practised his profession as veterinary surgeon here since. He was about 60 years of age. His widow and two daughters, Mrs. R. R. Lundy, of South Bend, and Miss Alice, at home, survive.

The late Dr. Orr was not only widely and favourably known as a veterinary surgeon, in which profession he was very successful, but his interest in matters relating to agricultural and Children's Aid work had endeared him to a host of friends. Dr. Orr was for many years chairman of the Humane Committee of the Children's Aid and Humane Society, and his work in this office will be long remembered with gratitude. As secretary of the Stratford Agricultural Society Dr. Orr did good work, and much of the credit for the revival and growth of the society and its activities, including the annual exhibitions and field crop competitions, belong to him.

We regret to announce the news, received by wire as we are going to press, of the death of Dean Horace Hoskins, of the New York State Veterinary College, on Wednesday, August 10th.

We have been notified of the death of Dr. Jas. W. Sallade, at his home in Auburn, Penn., U.S.A., on July 2nd. Dr. Sallade was a graduate of O.V.C. '83. For many years, since its organization he was a member of the Pennsylvania Veterinary Medical Examining Board, of which he was secretary at the time of his death.

The many friends of Dr. F. H. Webster of Unity, Sask., will regret to hear of his death, which occurred July 16th, 1921. The late Dr. Frederick H. Webster was born at Welwyn, Sask. in 1894. After graduating from the Ontario Veterinary College in 1919 he proceeded to Unity, where he was in practice until the time of his death. His kindliness and genial ways endeared him to all with whom he was associated, and he will be missed by many.

Dr. Wallace Calvin Abbott, who died at his home, 4605 N. Hermitage Ave., at 1.30 a.m., July 4, was born in Bridgewater, Vermont, October 12, 1857. His early education was obtained at the State Normal School, Randolf, Vt., the St. Johnsbury Academy, St. Johnsbury, Vt., and Dartmouth College, Hanover, N.H. Coming west, he worked his way through the University of Michigan, winning his degree as Doctor of Medicine in 1885. The following year he engaged in the practice of medicine in Chicago, building up a large practice on the North Side and winning many friends.

It was during this time that Doctor Abbott established The Abbott Alkaloidal Company, now known as The Abbott Laboratories, of which firm he was President continuously from the time of its establishment, more than thirty years ago, until his death.

The death occurred very suddenly Sunday evening, July 24, at his home in Millbank of Dr. R. C. Clarke, a well-known and popular resident of that village. The deceased appeared to be in his usual health during the day and the other members of the family went to church. When they returned Dr. Clarke was found in the hallway. It is presumed that the sudden death was caused by a blood clot on his brain, resulting from eye-trouble, which commenced some time ago by medicine being accidently dropped into the optic.

The late Dr. Clarke was born in Wales and came to Canada in the late seventies. From 1882 until the time of his death he practised successfully at Millbank, and on the day of his death had made several calls. There remains to mourn their loss his wife, two daughters and two sons: Mrs. Mulcahy of Millbank; Alice at home; Percy of the Whyte Packing Co., Stratford, and Dr. W. Steele Clarke, Douglas St., Stratford; also relatives in England and Wales.

In religion Dr. Clarke was a Presbyterian.

The Record has received from Mr. J. Basil Buxton, F.R.C.V.S., D.V.H., General Secretary of the National Veterinary Medical Association of Great Britain and Ireland, a copy of the Articles of the Association.

REVIEWS

A Manual of Veterinary Physiology. By Major-General Sir F. Smith, K.C.M.G., C.B., Fellow and Honorary Associate of the R.C.V.S., formerly Director-General Army Veterinary Service. 5th Edition, 1921, 892+XVI. pages, one coloured plate and 273 figures in the text. Bailliere, Tindall and Cox, 8 Henrietta Street, Covent Garden, London. Price 31|6 net.

The appearance of the 5th edition of Smith's Veterinary Physiology is welcomed, as it brings up to date a book familiar to veterinarians since its first appearance in 1892. The present edition has been considerably revised and enlarged.

The work is divided into chapters on the following subjects: The blood, the heart, the bloodvessels, respiration, digestion, the liver and pancreas, absorption, the endocrine glands and internal secretions, the skin, the urine, nutrition, animal heat, the muscular system, the nervous system, the senses, locomotor system, the foot, generation and development, growth, decay and death, and the chemical basis of the body.

Chapter XI., on Nutrition, has been increased to a size more in keeping with the importance of this subject which is daily proving itself to be of greater significance in the questions of health and disease. In compiling the section on vitamines the Author has drawn upon the Report of the Committee on "The Present State of Knowledge Concerning Accessory Food Factors (Vitamines)" 1919, and gives a fully modern idea of these important food essentials.

Chapter XVIII., Generation and Development has also been enlarged, and is divided into four sections. In the first, the anatomical arrangement of the generative organs of the various domestic animals is briefly noted before the physiology is discussed. The second section deals with milk secretion and the composition of milk. The third section is on Heredity, and the fourth on Breeding. This section is by J. B. Robertson, M.R.C.V.S., to whom credit is also given for revising section three.

Chapter XX., The Chemical Basis of the Body, has been written by Professor T. H. Milroy, M.D., Professor of Physiology in the Queen's University of Belfast, and according to the author is only intended as an outline, the reader being referred to the special works on this subject if fuller information is required.

The index is admirable and the book is very clearly written and arranged, making it especially valuable as a book of reference to the practitioner who has little time to browse around after the information he may be seeking; and the same clearness of explanation, and convenience of reference make it a highly suitable text book for the student.—R.G.

The Diseases of the Genital Organs of Domestic Animals. By W. L. Williams, Professor of Obstetrics and Research Professor in the Diseases of Breeding Cattle in the New York State Veterinary College at Cornell University. 856+XVIII. pages, 8 coloured plates and over

240 illustration in the text. W. L. Williams, Ithaca, N.Y. $10.00 prepaid.

The Diseases of the Genital Organs of Domestic Animals was not received in time for review in this issue, but it will appear in the next number of the Record.

Dourine in Canada 1904-1920, History Research and Suppression. Watson, E. A. Dominion of Canada, Department of Agriculture, Health of Animals Branch, 1920.

In this monograph the author gives an exhaustive account of Dourine in Canada. He includes in it a description of the disease as he found it in Canada, with symptoms and pathological findings: Diagnosis clinically and by the complement fixation test, in the latter he lucidly explains his methods of preparing and working with the various reagents: Dourine produced experimentally, a study of the **Trypanosoma equiperdum**; Regulations relating to the disease under the Contagious Disease Act: Six very excellent plates showing peculiar symptoms in horses, three coloured plates of the **Trypanosoma** and three charts, from which some very interesting data have been gathered.

Touching on its history it is pointed out that the disease is one of the oldest recorded in veterinary literature, but it is only within the last twenty-five years that its etiology has been understood. The causative agent, **Trypanosoma equiperdum**, was first demonstrated by Rouget in 1894, but as the specific cause of Dourine was contested by the leading veterinarians of Europe, and the question not yet settled when the disease first made an appearance in Canada, March 1904. The condition being first recognized by Inspector Burnett, chief veterinary officer of the Royal North West Mounted Police. His diagnosis was corroborated by Dr. Rutherford, then Veterinary Director General, and Doctors Hargrave and Davison.

A quarantine station was established near Lethbridge, Alta., where suspected animals were held for observation. Regulations were meanwhile formulated under the Contagious Disease Act, whereby provisions were made for the inspection of suspected animals and slaughter of the affected. The owners of the animals destroyed being reasonably compensated.

A peculiarity of the disease was noted by Dr. Rutherford in that most cases the symptoms were not progressive but became retrogressive, and the affected often seemed to recover so well that doubt began to arise whether it was actually Dourine or some other disease. Many blood and body fluid specimens were obtained in the field and forwarded to various laboratories, but without getting any useful information regarding the disease. Dr. Rutherford at this time drew attention to the fact that the disease being indigenous in Asia and Africa, had become very irregular in its clinical manifestations in Europe and probably it had become more modified under the climatic conditions of the North Western Provinces of Canada. It was, however, decided not to immediately carry out the slaughter policy, but hold the suspected animals for further observation.

In May, 1905, one hundred and sixteen animals were destroyed, while a large number not showing the same evidence of the disease, but suspected of it, were held over for further observation. Meanwhile special officers were detailed to deal with the disease, having the authority to slaughter any animals showing clinical symptoms.

In September, 1905, all animals at the quarantine station were slaughtered, except a few, which had never shown any symptoms. At the same time it was decided to utilize the station for research work and for this purpose Hadwen was transferred to Lethbridge. For the next year investigations were conducted both in the field and the laboratory but without any conclusive results, and all attempts to find the **Trypanosoma equiperdum** were unsuccessful. During this period four hundred and twelve horses were destroyed. At the Biological Laboratory, Ottawa, Higgins and Watson made a comparative cytological study of the blood of dourined and healthy horses, and found that the leucocyte formulae of the former differed from healthy horses.

In 1906 Watson took over the investigation of the disease and discovered trypanosomas in the blood of "cotton-tail" rabbits and also in a specie of the northern deer mouse, caught on the quarantine grounds. There was much interest created by this discovery since it was the first demonstration of trypanosomes in mamalian blood in Canada.

The **Trypanosoma equiperdum** was first found by Watson in a dourined mare recognized by Inspector Gallivan in February, 1907. The reproduction of the disease by the inoculation of the parasite into healthy animals removed all doubt regarding the etiology.

During the following five years the disease was discovered in several breeding districts in Alberta and Saskatchewan by Inspectors Gallivan and Hawke. At this time preventive measures were carried out by constant inspection and controlling the breeding and traffic of suspected animals. Owing, however, to the insidious form the disease took, this method proved unsatisfactory, but under the existing circumstances nothing more could be done.

Watson meanwhile had been conducting experimental and research work at Lethbridge and observed that healthy off-spring could be raised from affected animals; also that the serum of mares recovering from natural or experimental infection possessed immunizing properties and that they resisted re-infection. In one of his experiments he used Salvarsan ("606") in the dilution 0.2 grams in 100 c.c. of alkaline solution injected intravenously in two dogs that had become infected by eating the flesh of a diseased horse, with very beneficial results, the curative action being very marked and rapid. A relapse occurred, however, and a further injection in an increased dose was ineffectual, the dogs succumbing to the disease in about three months after infection. Further experiments were conducted for the prevention and treatment of the disease with special drugs, the results of which are, however, not included in this monograph.

The author's chief efforts were directed towards a method of specific diagnosis and to this end extensive studies were made with the sera of affected animals, in the serum-globulin, agglutination and precipitin tests. The agglutination test proved the most satisfactory, but did not meet all requirements.

After studying the disease in European laboratories, the complement fixation test was used by him, with modifications and improvements in the technique, evolving in the end a specific means of detecting the disease in its most latent form. This work was completed and in general use in Canada in 1913. On a test in which 2,718 horses were involved, the use of the test was vindicated. Four hundred of the horses gave a positive reaction to the test, which caused some scepticism on the part of the owners, since quite a large proportion of the reacters were apparently in perfect health. On being kept, however, symptoms were revealed and several died. After this the test came into its own.

Some idea of the extent of the use of the test will be had, when it is found that during 1912-1920 over 40,000 laboratory tests were conducted and 1,182 horses giving a positive serum reaction destroyed.

The author feels that at the present time Dourine has been totally suppressed in Canada. Moreover he asserts that in case of the disease ever being re-introduced it would be impossible for it to gain any headway, with the means now available for its detection in its most insidious forms, and could be dealt with promptly and effectually. He also offers the timely suggestion, that all imported stallions and those travelling through the country for breeding purposes, should be tested.

The work of Watson has a two-fold significance for the veterinary profession in Canada. Firstly the importance of research to improve its knowledge of obscure diseases and the advancement of the profession generally and secondly as an example of perseverance and attainment that may well be used as an inspiration for future workers.—L.M.H.

GIRLING'S POEMS.

Among the outstanding men of the veterinary profession who fell in the Great War, there was no one better known in Saskatchewan than the late Captain Theodore A. Girling. During the dark days of the salient, and later amid the terrible scenes on the Somme, Girling wrote his poems, "The Salient".

These poems are good and are intensely interesting to lovers of horses. Among the most popular in the little book is, "Dumb Heroes", inspired by the transport horses of the 9th Canadian Infantry Brigade. This poem was written near Ypres in 1916. The verse is rich in incidents connected with the horses which daily carried up the rations over places that no motor car could travel. He refers to the service of these gallant horses in one verse:—

> There's a fresh-healed wound in the chestnut,
> The black mare's neck has a mark,
> The brown mule's new mate won't keep the same gait
> As the one killed last night in the dark.

And again referring to the Veterinary Service he says:—

> There's a swift painless death for the hopeless,
> With a grave in a shell hole or field,
> There's a hospital base for the casualty case,
> And a vet. for those easily healed.

The riding horses belonging to Infantry Companies were always a subject of special sympathy. "The horse allotted to X Company" is a typical illustration in verse of one of his many endeavours to preserve the "Company charger", from overwork. This last mentioned poem was written whilst he was V.O. with the 4th Canadian Infantry Brigade. There are 22 poems, all but one dealing with some phase of the war. The entire book of poems consisting of 68 pages has been published by Cecil, Palmer and Hayward of England at 2|- net, and they may be purchased from his widow, Mrs. Dora Girling, 121 Beechwood Avenue, Fore Bay, Victoria, B.C. at 75 cents per copy.

It is hoped that those who are fond of poetry will avail themselves of the opportunity of securing this little book of poems from Mrs. Girling. The added attraction being that they represent the work of a Canadian veterinary surgeon who died for his country and deserve to be read and admired by every member of the profession.

Those who wish to purchase copies should write direct to Mrs. Girling, whose address we give above.—T.C.E.

Biologic Preparations

By Ronald Gwatkin, Dept. of Bacteriology, Ontario Veterinary College.

In considering the biological preparations used for the prevention and cure of disease, it is necessary to realize that whether administered prophylactically or curatively the aim is either to stimulate the body to produce antibodies against certain microorganisms, or to transfer to the animal a fully prepared set of antibodies in another animals serum. In either case the animal is immunized, in the former case actively, in the latter passively. Immunity is a relative condition, that is, there may be a partial or complete protection against, or insusceptibility to, disease.

Immunity may be natural, owing to the species or individuality of the animal; it may be naturally acquired by an attack of disease, or concurrent with age (as in blackleg) ; or it may be brought about in some cases by the injection of a suitable antigen. This fact is made use of in the administration of biological preparations to produce an artificial immunity. This immunity may be either active or passive. A passively immunized animal has played no part in producing its antibodies, these being transferred to it in the serum of another animal that has been immunized against the particular microorganism or toxin against which it is desired to protect, and consequently such an immunity is of short duration as the antibodies are treated as foreign substances and eliminated from the body, no more being produced to replace them. The value of passive immunity lies in treatment, where antibodies are immediately required to combat the causative agent of the condition or to neutralize its toxic products; to give protection at once where exposure for a short time is expected; or to protect the animal while an active immunity is being built up. Unfortunately it is possible to produce antisera for only relatively few bacteria. The antisera will be discussed in detail later.

An actively immunized animal has produced its protection through the activity of its own body cells which have responded to the stimulus of an antigen, and which continue to give off antibodies after the disappearance of the antigenic substance. Such an immunity is therefore more solid and lasting, though it is not brought about at once as in the case of a passive immunity.

Both active and passive immunity are made use of in the simultaneous method of vaccinating against anthrax and hog cholera. The serum confers a passive immunity which protects the animal against the vaccine or virus administered to stimulate the production of the active immunity, and also protects it while the immunity is being built up.

An artificial active immunity may be produced in different ways by different bacteria, vira, or toxic products of bacteria, according to their nature and action. Thus living bacteria, either virulent as in infectious abortion vaccine, or attenuated as in anthrax vaccine, are used. Dead bacteria in some cases retain their antigenic power, as for example in a staphylococcus bacterin. Toxins (exogenous) when injected produce antitoxins such as tetanus or botulinus antitoxin. Endotoxins, and other products contained in the so called aggressins and filtrates, produce an immunity in certain conditions; and finally non specific proteins will create some immunity against certain organisms, though this is more of experimental interest than actual clinical value to us at the present time.

A vaccine in the usual acceptance of the word by veterinarians is a suspension of living bacteria either unchanged, or attenuated by heat or growing under unfavourable circumstances. They are standardized by counting, turbidity comparisons, volume of sediment, or animal inoculation. They are usually put up in the broth in which they are grown, but may be precipitated by centrifugal force and resuspended in normal salt solution. Vaccines have greater antigenic power than killed cultures because they have avoided the heating necessary to kill the latter, and they produce a stronger and more lasting immunity. Infectious abortion vaccine, the value of which has not yet been fully decided, appears at all events to be of more value than the dead suspension or bacterin. Vaccines are essentially useful in the prevention of disease for producing an active immunity in healthy animals that may later be exposed to infection; and not for cure, as an attenuated culture while harmless to a healthy animal may aggravate the condition in an animal whose resistance has already been lowered by disease.

Serovaccines or sensitized vaccines are prepared by suspending the bacteria for a length of time in a serum previously produced by repeated injections of the same strain of bacteria into suitable animals. The bacteria having remained in this specific antiserum for the allotted time are recovered by centrifugation, washed in sterile normal salt solution, resuspended in salt solution and standardized to the required dosage. During this process of sensitization the antibodies in the specific immune serum unite with the bacteria and when injected the local or systemic reaction which may follow the administration of a large dose of unsensitized vaccine is lessened, thus permitting the giving of larger and more frequent doses. The sensitized bacteria are probably more rapidly absorbed and some antibodies passively conveyed to the blood.

Bacterins or bacterial vaccines are prepared by growing the desired organisms on solid medium in "slants" or flat bottles. When a good growth has been obtained the bacteria are washed off in thick suspension with saline solution, thoroughly shaken to get an even distribution of the microorganisms and standardized before heating or the addition of preservatives. Standardization is carried out by the Wright method of counting against blood cells, by comparison with standard tubes for turbidity, direct counting in a counting chamber as for blood cells, centrifuging and determining the volume of bacteria, or by finding the weight of the bacteria after evaporation of the liquid. The first two methods are probably most commonly used. The suspension is heated at the lowest temperature and for the shortest time necessary to kill the bacteria. This is very important, as too high a temperature, or too long an exposure will reduce or completely destroy the antigenic power of the bacteria and render the bacterin useless. The suspension is then tested for sterility, diluted to approximately the required number of bacteria per mil, and a small quantity of preservative added, such as Phenol 0.25%, or Tricresol 0.3%.

Bacterins have also been made up by suspending dead dried bacteria in a mixture of oil and lanolin instead of saline, the underlying principle of the oil bacterin being that severe reactions from the rapid absorption of products of autolysis cannot occur with dried bacteria, and also that the oil delays absorption so that a large dose can be given. The technical difficulties of manufacture are, however, greater than with the saline product, as more handling is required for the preparation of the oil product, and at present there does not seem any particular necessity for it in veterinary practice.

Bacterins were originally used by Wright prophylactically and in the course of subacute or chronic infections, on the principle that the infection could not sufficiently stimulate the production of antibodies to bring about a cure. Prophylaxis, and the treatment of localized lesions of a chronic nature, have thus been considered the indications for the use of bacterins, but more recent work shows the possibilities of bacterins in acute infections where the maximum antibody response has not been reached.

Serobacterins or sensitized bacterins are prepared in the same manner as serovaccines, and are simply killed bacteria sensitized by exposure to their specific immune serum as already described, and possess the same advantages.

Autogenous or autogenic bacterins are prepared from bacteria isolated from the animal to which it is to be administered. The great advantage is that the actual strain or strains of bacteria causing the trouble can be obtained and consequently when injected they stimulate the production of antibodies that are specific for the invading bacteria. One strain of a certain organism may produce antibodies which are not as effective against another strain of the same organsim, therefore the value of an autogenic bacterin if properly selected and prepared will be generally greater than that of a stock bacterin.

Polyvalent bacterins are prepared by using many strains of the organisms against which it is desired to protect, thus producing antibodies that have a wider range of usefulness. Strains may be different and yet not be truly polyvalent, that is, they may not have different immunizing qualities. All stock bacterins should be polyvalent for the reason mentioned in the preceeding paragraph.

Aggressins and filtrates are preparations used to immunize against blackleg. The aggressin is prepared by collecting the tissue juice from the muscles of artificially infected calves and filtering it through a porcelain candle to remove the spores and bacteria. No germs are present, but the antigenic power remains. These tissue juices contain various toxic products, bacillary extracts, secretions and the so called aggressins. Their action is not well understood, but the immunity produced is absolutely satisfactory.

The filtrate is obtained by growing the bacillus in special meat broth until it becomes highly toxic. The organisms are then filtered out through a porcelain candle and the filtrate concentrated in vacuo. The filtrate is sometimes described as artificial aggressin. Either the aggressin or filtrate should be used for immunizing against blackleg in preference to other preparations on account of the fact that they are germ free products.

(To be continued.)

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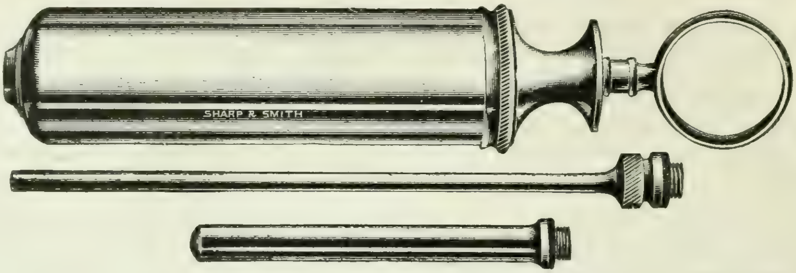

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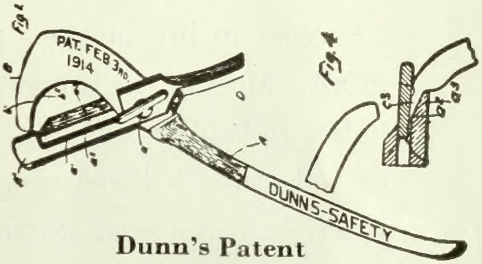

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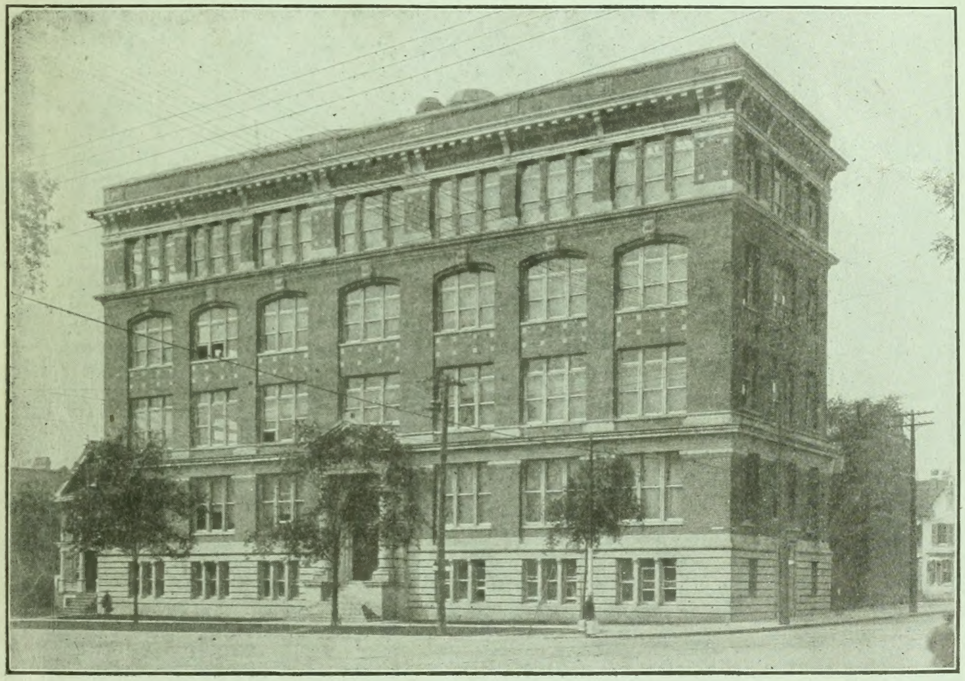

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